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Performance Measures for BSkSP- 3 with BChSP- 4(0,2)2 as a Reference Plan

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ABSTRACT

Bayesian acceptance sampling is the technique which deals with procedures by which the decision to accept or reject lots is based on the examination of prior process history or knowledge of samples. The present work relates to the tables for the selection of Bayesian Skip-lot Sampling Plan 3 (BSkSP-3) with Bayesian Chain Sampling Plan (BChSP- 4(0,2)2) as a reference plan. Beta distribution is considered as the prior distribution for BChSP- 4(0,2)2. Construction and evaluation of performance measures of BSkSP-3 are derived and tables have constructed for this purpose. ASN values were tabulated for different values of p and its comparison is done with BMChSP-1 and BChSP- 4(0, 2)2 as reference plans.

Keywords: Acceptance Quality Level (AQL), BSkSP-3, Bayesian Chain Sampling Plan (BChSP- 4(0,2)2), Indifference Quality Level (IQL), Limiting Quality Level (LQL).

1. INTRODUCTION

Acceptance sampling is one of the major branches of Statistical Quality Control. SQC is the process of inspecting enough products from available lots to probabilistically ensure a specified quality level. Acceptance Sampling is defined as a procedure by the decision to accept or reject a lot or process is based on the available samples.

Utilization of prior process history for the selection of distribution (viz., Gamma Poisson, Beta Binomial) to describe the random fluctuations involved in acceptance sampling is the approach used in Bayesian acceptance sampling. In Bayesian sampling plans, the user needs to specify the distribution of defectives from lot to lot. The prior distribution is the expected distribution of a lot of quality on which the sampling plan is going to operate. The distribution, which is formulated prior to the taking of samples, is called prior distribution.

Calvin (1984) provides procedures and tables for implementing Bayesian Sampling plans and has already presented in a clear manner about 'How and When to perform Bayesian Acceptance Sampling’. Oliver and Springer (1972) has presented a set of tables based on the assumption of Beta prior distribution with specific posterior risk to achieve minimum sample size, which avoids the problem of estimating cost parameters. Hald (1965) gives a more detailed account of sampling plans based on discrete prior distributions of product quality. Case and Keats (1982) have provided a table for attribute sampling plan design methodologies.

Soundararajan (1978) has designed procedure and tables for construction and selection of chain sampling plan (ChSP-1). Latha and Rajeswari (2013) has derived minimum average regret function for Bayesian Chain Sampling Plan-1 (BChSP-1). Latha and Jeyabharathi (2014) discussed the performance measures for Bayesian Chain Sampling Plan using binomial as prior distribution. Latha and Rajeswari (2012) have given regret values for BChSP-1for different sample sizes and represented graphically. Latha and Jeyabharathi (2014) have given a set of tables for the selection of Bayesian Chain Sampling Plan (BChSP-1) based on different combinations of entry parameters. Bennet and Rajeswari (2017) discussed the performance measures for BSkSP-2 with Bayesian Modified Chain Sampling Plan as a reference plan with gamma distribution as prior distribution. Bennet and Rajeswari (2017) has discussed the performance measures for BSkSP-3 with Bayesian Modified Chain Sampling Plan as a reference plan with gamma distribution as prior distribution. Bennet and Rajeswari (2018) has given the performance measures for BSkSP-2 with BChSP- 4(0, 2) 2 as a reference plan with Beta binomial as prior distribution. Bennet and Rajeswari (2018) discussed the performance measures for BSkSP-3 with BChSP-1 as a reference plan with Beta binomial as prior distribution.

In this paper, the selection procedures and tables constructed for BSkSP-3 using Bayesian Chain Sampling Plan (which uses Beta Binomial prior distribution) as a reference plan. Tables of average probability of acceptance for BSkSP-3 are constructed and the selection of BSkSP-3 plan, which is based on AQL, IQL, LQL is designed. Bayesian Chain Sampling Plan BChSP- 4 (0,2)2 is considered as the reference plan. Here Beta binomial is considered as prior distribution.

2. CHAIN SAMPLING PLAN

The idea of Chain Sampling Plan was first introduced by Prof. H.F. Dodge who is regarded as the father of acceptance sampling in his 1959 industrial quality control paper. Chain Sampling Plan (ChSP-1) is a particular type of sampling inspection plan introduced by Dodge (1955) and is very beneficial for application to product characteristics involving destructive or costly tests under certain conditions.

Extended Chain Sampling Plans namely ChSP- 4A (c_1, c_2) r was presented by Frishman Fred in 1960. Clark (1960) developed an OC curve for Chain Sampling Plans. Dodge and Stephens (1966) developed some new Chain Sampling inspection plans. An extension of

ChSP-1 plan was suggested by Bagchi (1976), which calls for further sampling only when one non-conforming unit is found.

Raju and Akamanchi Raghottam (2012) has evolved a search process for the development and selection of Chain Sampling Plan ChSP- 4(c1, c2) given p1, p2, c1, c2 for the case whilst $\alpha = 0.05$, $\beta = 0.10$ and N = 1000. Sample tables are supplied for the choice of ChSP- 4(c1, c2). Aslam, *et al*. (2013) derived ChSP- 4(c1, c2) plans and determined the parameters of the plan by satisfying the producer's and consumer's risk simultaneously. They have also derived the values of the performance measures.

2.1 Conditions for the application of ChSP - 4A (c_1, c_2) r:

1. The product to be checked or tested comprises a series of consecutive lots or groups manufactured by an essentially continuing process.
2. The similar qualities of the lots are usually expected, under normal conditions.
3. The lots are statistically independent to each other and the sample size is small enough in comparison with the lots size, to permit the computing of probabilities by use of the binomial distribution.

2.2 Operating Procedure of ChSP- 4A (c_1, c_2) r:

1. Draw a sample of n units from each lot and test each unit for conformance to the concerned requirement.
2. If d (the observed number of defectives) $\leq$ c1, Accept the lot.
3. The first stage is that, if d $\geq$ r, reject the lot.
4. Either the following procedures called the second stage can be followed, If c1< d < r.
5. If d′ (the total number of defectives arising out of lot under investigation plus the previous (k-1) lots) is less than or equal to c2, Accept the lot. If d′ > c2, Reject the lot. (or)
6. Delay the action until an further (k-1) lots have been tested. if d′ (the total number of defectives for the k lots) is less than or equal to c2. Accept the lot under consideration. If d′ > c2. Reject the lot.

2.3 The Reference Plan

The reference plan considered in developing Bayesian Skip-lot Sampling Plan - 3, namely, BSkSP-3, is Bayesian chain sampling plan BChSP- 4(0,2)2.

The Average Probability of acceptance of BChSP- 4 (0,2)2 is given by Latha and Arivazhagan (2015).

The Average Probability of acceptance is given as

$$\overline{p} = \frac{1}{\beta(s,t)}[\beta(s,n+t) + n\beta(s+1,nk+t-1) + n^2(k-1)\beta(s+2,nk+t-2)] \qquad (1)$$

Beta distribution is considered as the prior distribution. Hence the $\overline{P}$ of equation (1) is a mixed distribution of Beta and Binomial distributions.

3. BAYESIAN Skip-lot SAMPLING PLAN BSkSP- 3

In the following section, selection procedures of BSkSP-3 with BChSP- 4(0, 2)2 as reference plan is now are indicated. Tables were constructed for different values of s, f, k and i and its values are shown in Table 1 and its parametric values indexed by s, f, k and i are indicated. ASN values for BSkSP-3 are shown in Table 3.

3.1 Operating Procedure for SkSP-3

The operating procedure of the SkSP-3 plan is as follows:

1. Using the reference plan, begin with regular inspection.
2. When ‘i’ successive items are fixed on regular check, shift to omitting inspection (check a fraction ‘f’ of the lots).
3. When a lot is excluded on omitting inspection, check next ‘k’ items produced.
4. Switch to regular inspection, when an item is excluded while checking ‘k’ items.
5. Once all ’k’ items are acknowledged, go on to step 2.
6. Screenings of each rejected lot is carried out and modify or interchange all the nonconforming units obtained.

Vijayaraghavan (1990) in a similar approach used by Brugger (1975) has derived a formula for the OC function of SkSP-3 and is given by

$$P_a(f,i) = \frac{fP + (1-f)P^i(2-P^i)}{f + (1-f)P^i(2-P^i)} \qquad (2)$$

where OC function of the reference sampling plan is P. The probability of acceptance of SkSP-3 plan is a function of the skipping parameters f and i (when k = i) and of P.

3.2 The Average Probability of acceptance of BSkSP-3 with BChSP-4(0,2)2 as a reference plan

The Probability of acceptance of Bayesian Skip lot Plan – 3 is given by substituting the $\overline{P}$ of equation 1 in place of P in equation, 2 will get the new $\overline{P}$ as follows:

$$P_a(f,i) = \frac{f\left(\frac{1}{\beta(s,t)}[\beta(s,n+t) + n\beta(s+1,nk+t-1) + n^2(k-1)\beta(s+2,nk+t-2)]\right) + (1-f)\left(\frac{1}{\beta(s,t)}[\beta(s,n+t) + n\beta(s+1,nk+t-1) + n^2(k-1)\beta(s+2,nk+t-2)]\right)^i \left(2-\left(\frac{1}{\beta(s,t)}[\beta(s,n+t) + n\beta(s+1,nk+t-1) + n^2(k-1)\beta(s+2,nk+t-2)]\right)\right)^i}{f + (1-f)\left(\frac{1}{\beta(s,t)}[\beta(s,n+t) + n\beta(s+1,nk+t-1) + n^2(k-1)\beta(s+2,nk+t-2)]\right)^i \left(2-\left(\frac{1}{\beta(s,t)}[\beta(s,n+t) + n\beta(s+1,nk+t-1) + n^2(k-1)\beta(s+2,nk+t-2)]\right)\right)^i} \qquad (3)$$

where $\mu = \frac{s}{s+t}$, mean value of the product quality p.

3.3 Selection of Plans

Selection procedures of BSkSP-3 Plan with BChSP- 4(0,2)2 as reference plan will now be indicated, under the conditions for application of Poisson model for OC curve, with Beta prior distribution.

3.4 Construction of Tables

The Point of control μ_0 or Indifference Quality Level (IQL) can be calculated by equating the above equation (1) to 0.50 for values of s = 1, 2, 3, f = 2/3, 1/3, 1/4 and 1/5, also for i = 4,6,8,10,12 by Newton's method of approximation, those values are shown in Table 1. Similarly, we can find μ_1 and μ_2 after equating the same equation (1) to 0.95 and 0.10. Its values are given in Table 1 and its parametric values are shown in Table 2.

Illustration 1

For s = 1, k = 1, f = 1/3, i = 4 and $\overline{P}$ = 0.10 the corresponding value of μ_2 = 0.15695
For s = 2, k = 2, f = 1/3, i = 6 and $\overline{P}$ = 0.10 the corresponding value of μ_2 = 0.05920

Illustration 2

For s = 1, k = 2, f = 2/3, i = 4 and $\overline{P}$ = 0.50 the corresponding value of μ_0 = 0.01638
For s = 2, k = 2, f = 2/3, i = 6 and $\overline{P}$ = 0.50 the corresponding value of μ_0 = 0.01547

Illustration 3

For s = 2, k = 1, f = 1/5, i = 8 and $\overline{P}$ = 0.95 the corresponding value of μ_1 = 0.00561
For s = 3, k = 2, f = 1/5, i = 10 and $\overline{P}$ = 0.95 the corresponding value of μ_1 = 0.00449

Comparison of BSkSP- 3 with BMChSP-1 and BChSP- 4(0, 2)2 as reference plans

For s =1, k =1, f = 2/3, i = 6, the LQL value of BSkSP-3 with BChSP- 4 (0, 2)2 is 0.15669 whereas for BSkSP-3 with BMChSP-1 the value is 2.4426. So BSkSP-3 with BChSP-4(0,2)2 has minimum LQL than BSkSP-3 with BMChSP-1.
For s = 2, k = 2, f = 1/3, i = 8, the AQL value of BSkSP-3 with BChSP- 4(0,2)2 is 0.00398, whereas for BSkSP-3 with BMChSP-1 the value is 0.0428. So BSkSP-3 with BChSP- 4(0, 2)2 has minimum AQL than BSkSP-3 with BMChSP-1.
For s = 3, k = 2, f = 1/5, i = 10, the IQL value of BSkSP-3 with BChSP- 4(0, 2)2 is 0.01443, whereas for BSkSP-3 with BMChSP-1 the value is 0.1619, So BSkSP-3 with BChSP- 4(0,2)2 has minimum IQL than BSkSP-3 with BMChSP-1.
From the above comparison it is evident that BChSP-4 (0,2)2 is better than BMChSP -1.

The Average Sample Number (ASN) for BSkSP-3

The average sample number is given by
ASN (p) = F × ASN(R),
where $F = \frac{f}{f+(1-f)(2-p^i)p^i}$

$$ASN\ (p) = \frac{nf}{f + (1-f)(2-p^i)p^i} \quad (4)$$

where ASN(R) = *n*, *n* from reference plans.

Illustration 1

For n = 42, i =1, p = 0.02 and f = 2/3 substituting these values in equation (4) will get the value of ASN = 41.18 for given values of Given AQL (μ_1), LQL (μ_2) and sample size n. Similarly for values of p = 0.001, 0.005, 0.0075, 0.01, 0.03, 0.04, 0.05 and f = 1/3, 1/4, 1/5 will get corresponding values of ASN as shown in the table 3.

Table 1 - μ values for Bayesian Skip Lot Sampling Plan 3 (BSkSP- 3) for given Average Probability of Acceptance

s = 1	**f**	**i**	**AQL**	**LQL**	**IQL**
k = 1	2/3	4	0.00356	0.15675	0.02482
		6	0.00348	0.15669	0.02399
		8	0.00341	0.15669	0.02377
		10	0.00336	0.15669	0.02371
		12	0.00331	0.15669	0.02369
	1/3	4	0.00503	0.15695	0.02742
		6	0.00470	0.15669	0.02477
		8	0.00446	0.15669	0.02398
		10	0.00426	0.15669	0.02377
		12	0.00441	0.15669	0.02371
	1/4	4	0.00578	0.15707	0.02877
		6	0.00529	0.15669	0.02521
		8	0.00494	0.15669	0.02412
		10	0.00468	0.15669	0.02380
		12	0.00446	0.15669	0.02372
	1/5	4	0.00641	0.15719	0.02994
		6	0.00578	0.15669	0.02562
		8	0.00534	0.15669	0.02425
		10	0.00501	0.15669	0.02384
		12	0.00475	0.15669	0.02373
s = 1	**f**	**i**	**AQL**	**LQL**	**IQL**
k = 2	2/3	4	0.00216	0.10365	0.01638
		6	0.00213	0.10340	0.01533
		8	0.00211	0.10339	0.01487
		10	0.00209	0.10340	0.01467
		12	0.00207	0.10340	0.01458
	1/3	4	0.00329	0.10439	0.02006
		6	0.00314	0.10342	0.01705
		8	0.00302	0.10339	0.01571
		10	0.00292	0.10340	0.01507
		12	0.00284	0.10340	0.01477
	1/4	4	0.00392	0.10487	0.02189
		6	0.00367	0.10343	0.01789
		8	0.00348	0.10339	0.01616

		10	0.00332	0.10340	0.01530
		12	0.00320	0.10340	0.01488
	1/5	4	0.00447	0.10533	0.02324
		6	0.00412	0.10345	0.01861
		8	0.00386	0.10339	0.01654
		10	0.00366	0.10340	0.01550
		12	0.00350	0.10340	0.01498
s = 2	**f**	**i**	**AQL**	**LQL**	**IQL**
k = 1	2/3	4	0.00387	0.07854	0.02068
		6	0.00379	0.07852	0.02013
		8	0.00372	0.07852	0.01998
		10	0.00367	0.07852	0.01995
		12	0.00362	0.07852	0.01994
	1/3	4	0.00532	0.07861	0.02235
		6	0.00500	0.07852	0.02064
		8	0.00476	0.07852	0.02013
		10	0.00457	0.07852	0.01998
		12	0.00442	0.07852	0.01995
	1/4	4	0.00603	0.07865	0.02319
		6	0.00557	0.07852	0.02093
		8	0.00523	0.07852	0.02022
		10	0.00498	0.07852	0.02001
		12	0.00477	0.07852	0.01995
	1/5	4	0.00662	0.07870	0.02391
		6	0.00603	0.07852	0.02119
		8	0.00561	0.07852	0.02030
		10	0.00530	0.07852	0.02003
		12	0.00505	0.07852	0.01996
s = 2	**f**	**i**	**AQL**	**LQL**	**IQL**
k = 2	2/3	4	0.00329	0.05922	0.01587
		6	0.00322	0.05920	0.01547
		8	0.00317	0.05920	0.01536
		10	0.00312	0.05920	0.01533
		12	0.00308	0.05920	0.01532
	1/3	4	0.00441	0.05927	0.01711
		6	0.00417	0.05920	0.01585
		8	0.00398	0.05920	0.01547
		10	0.00383	0.05920	0.01536
		12	0.00371	0.05920	0.01533
	1/4	4	0.00496	0.05930	0.01774
		6	0.00460	0.05920	0.01606
		8	0.00434	0.05920	0.01553
		10	0.00415	0.05920	0.01538
		12	0.00399	0.05920	0.01534
	1/5	4	0.00540	0.05934	0.01827
		6	0.00496	0.05920	0.01626

		8	0.00464	0.05920	0.01560
		10	0.00440	0.05920	0.01540
		12	0.00420	0.05920	0.01534
s = 3	**f**	**i**	**AQL**	**LQL**	**IQL**
k = 1	2/3	4	0.00395	0.06132	0.01933
		6	0.00387	0.06131	0.01886
		8	0.00380	0.06131	0.01874
		10	0.00374	0.06131	0.01871
		12	0.00369	0.06131	0.01869
	1/3	4	0.00539	0.06137	0.02070
		6	0.00507	0.06131	0.01930
		8	0.00483	0.06131	0.01886
		10	0.00464	0.06131	0.01874
		12	0.00449	0.06131	0.01871
	1/4	4	0.00608	0.06140	0.02144
		6	0.00563	0.06131	0.01955
		8	0.00530	0.06131	0.01894
		10	0.00504	0.06131	0.01876
		12	0.00484	0.06131	0.01871
	1/5	4	0.00665	0.06143	0.02204
		6	0.00608	0.06131	0.01977
		8	0.00567	0.06131	0.01901
		10	0.00536	0.06131	0.01878
		12	0.00512	0.06131	0.01872
s = 3	**f**	**i**	**AQL**	**LQL**	**IQL**
k = 2	2/3	4	0.00338	0.04564	0.01483
		6	0.00332	0.04563	0.01449
		8	0.00327	0.04563	0.01440
		10	0.00322	0.04563	0.01438
		12	0.00318	0.04563	0.01437
	1/3	4	0.00450	0.04567	0.01586
		6	0.00426	0.04563	0.01481
		8	0.00408	0.04563	0.01449
		10	0.00393	0.04563	0.01440
		12	0.00381	0.04563	0.01438
	1/4	4	0.00504	0.04569	0.01637
		6	0.00469	0.04563	0.01499
		8	0.00444	0.04563	0.01455
		10	0.00424	0.04563	0.01442
		12	0.00408	0.04563	0.01438
	1/5	4	0.00547	0.04571	0.01681
		6	0.00503	0.04563	0.01515
		8	0.00472	0.04563	0.01460
		10	0.00449	0.04563	0.01443
		12	0.00430	0.04563	0.01439

Table 2 - Parametric Values of Bayesian Skip Lot Sampling Plan 3 (BSkSP - 3)

s = 1	**f**	**i**	**AQL**	**LQL**	**IQL**	**μ_2/μ_1**	**μ_0/μ_1**
k = 1	2/3	4	0.00356	0.15675	0.02482	44.0309	6.9719
		6	0.00348	0.15669	0.02399	45.0259	6.8937
		8	0.00341	0.15669	0.02377	45.9501	6.9707
		10	0.00336	0.15669	0.02371	46.6339	7.0565
		12	0.00331	0.15669	0.02369	47.3384	7.1571
	1/3	4	0.00503	0.15695	0.02742	31.2028	5.4513
		6	0.00470	0.15669	0.02477	33.3383	5.2702
		8	0.00446	0.15669	0.02398	35.1323	5.3767
		10	0.00426	0.15669	0.02377	36.7817	5.5798
		12	0.00441	0.15669	0.02371	35.5306	5.3764
	1/4	4	0.00578	0.15707	0.02877	27.1747	4.9775
		6	0.00529	0.15669	0.02521	29.6200	4.7656
		8	0.00494	0.15669	0.02412	31.7186	4.8826
		10	0.00468	0.15669	0.0238	33.4808	5.0855
		12	0.00446	0.15669	0.02372	35.1323	5.3184
	1/5	4	0.00641	0.15719	0.02994	24.5226	4.6708
		6	0.00578	0.15669	0.02562	27.1090	4.4325
		8	0.00534	0.15669	0.02425	29.3427	4.5412
		10	0.00501	0.15669	0.02384	31.2754	4.7585
		12	0.00475	0.15669	0.02373	32.9874	4.9958
s = 1	**f**	**i**	**AQL**	**LQL**	**IQL**	**μ_2/μ_1**	**μ_0/μ_1**
k = 2	2/3	4	0.00216	0.10365	0.01638	47.9861	7.5833
		6	0.00213	0.10340	0.01533	48.5446	7.1972
		8	0.00211	0.10339	0.01487	49.0000	7.0474
		10	0.00209	0.10340	0.01467	49.4737	7.0191
		12	0.00207	0.10340	0.01458	49.9517	7.0435
	1/3	4	0.00329	0.10439	0.02006	31.7295	6.0973
		6	0.00314	0.10342	0.01705	32.9363	5.4299
		8	0.00302	0.10339	0.01571	34.2351	5.2020
		10	0.00292	0.10340	0.01507	35.4110	5.1610
		12	0.00284	0.10340	0.01477	36.4085	5.2007
	1/4	4	0.00392	0.10487	0.02189	26.7526	5.5842
		6	0.00367	0.10343	0.01789	28.1826	4.8747
		8	0.00348	0.10339	0.01616	29.7098	4.6437
		10	0.00332	0.10340	0.01530	31.1446	4.6084
		12	0.00320	0.10340	0.01488	32.3125	4.6500
	1/5	4	0.00447	0.10533	0.02324	23.5638	5.1991
		6	0.00412	0.10345	0.01861	25.1092	4.5170
		8	0.00386	0.10339	0.01654	26.7850	4.2850
		10	0.00366	0.10340	0.01550	28.2514	4.2350
		12	0.00350	0.10340	0.01498	29.5429	4.2800
s = 2	**f**	**i**	**AQL**	**LQL**	**IQL**	**μ_2/μ_1**	**μ_0/μ_1**
k = 1	2/3	4	0.00387	0.07854	0.02068	20.2946	5.3437

		6	0.00379	0.07852	0.02013	20.7177	5.3113
		8	0.00372	0.07852	0.01998	21.1075	5.3710
		10	0.00367	0.07852	0.01995	21.3951	5.4360
		12	0.00362	0.07852	0.01994	21.6906	5.5083
	1/3	4	0.00532	0.07861	0.02235	14.7763	4.2011
		6	0.00500	0.07852	0.02064	15.7040	4.1280
		8	0.00476	0.07852	0.02013	16.4958	4.2290
		10	0.00457	0.07852	0.01998	17.1816	4.3720
		12	0.00442	0.07852	0.01995	17.7647	4.5136
	1/4	4	0.00603	0.07865	0.02319	13.0431	3.8458
		6	0.00557	0.07852	0.02093	14.0969	3.7576
		8	0.00523	0.07852	0.02022	15.0134	3.8662
		10	0.00498	0.07852	0.02001	15.7671	4.0181
		12	0.00477	0.07852	0.01995	16.4612	4.1824
	1/5	4	0.00662	0.07870	0.02391	11.8882	3.6118
		6	0.00603	0.07852	0.02119	13.0216	3.5141
		8	0.00561	0.07852	0.02030	13.9964	3.6185
		10	0.00530	0.07852	0.02003	14.8151	3.7792
		12	0.00505	0.07852	0.01996	15.5485	3.9525
s = 2	**f**	**i**	**AQL**	**LQL**	**IQL**	**μ_2/μ_1**	**μ_0/μ_1**
k = 2	2/3	4	0.00329	0.05922	0.01587	18.0000	4.8237
		6	0.00322	0.05920	0.01547	18.3851	4.8043
		8	0.00317	0.05920	0.01536	18.6751	4.8454
		10	0.00312	0.05920	0.01533	18.9744	4.9135
		12	0.00308	0.05920	0.01532	19.2208	4.9740
	1/3	4	0.00441	0.05927	0.01711	13.4399	3.8798
		6	0.00417	0.05920	0.01585	14.1966	3.8010
		8	0.00398	0.05920	0.01547	14.8744	3.8869
		10	0.00383	0.05920	0.01536	15.4569	4.0104
		12	0.00371	0.05920	0.01533	15.9569	4.1321
	1/4	4	0.00496	0.05930	0.01774	11.9556	3.5766
		6	0.00460	0.05920	0.01606	12.8696	3.4913
		8	0.00434	0.05920	0.01553	13.6406	3.5783
		10	0.00415	0.05920	0.01538	14.2651	3.7060
		12	0.00399	0.05920	0.01534	14.8371	3.8446
	1/5	4	0.00540	0.05934	0.01827	10.9889	3.3833
		6	0.00496	0.05920	0.01626	11.9355	3.2782
		8	0.00464	0.05920	0.01560	12.7586	3.3621
		10	0.00440	0.05920	0.01540	13.4545	3.5000
		12	0.00420	0.05920	0.01534	14.0952	3.6524
s = 3	**f**	**i**	**AQL**	**LQL**	**IQL**	**μ_2/μ_1**	**μ_0/μ_1**
k = 1	2/3	4	0.00395	0.06132	0.01933	15.5241	4.8937
		6	0.00387	0.06131	0.01886	15.8424	4.8734
		8	0.00380	0.06131	0.01874	16.1342	4.9316
		10	0.00374	0.06131	0.01871	16.3930	5.0027
		12	0.00369	0.06131	0.01869	16.6152	5.0650

	1/3	4	0.00539	0.06137	0.02070	11.3859	3.8404
		6	0.00507	0.06131	0.01930	12.0927	3.8067
		8	0.00483	0.06131	0.01886	12.6936	3.9048
		10	0.00464	0.06131	0.01874	13.2134	4.0388
		12	0.00449	0.06131	0.01871	13.6548	4.1670
	1/4	4	0.00608	0.06140	0.02144	10.0987	3.5263
		6	0.00563	0.06131	0.01955	10.8899	3.4725
		8	0.00530	0.06131	0.01894	11.5679	3.5736
		10	0.00504	0.06131	0.01876	12.1647	3.7222
		12	0.00484	0.06131	0.01871	12.6674	3.8657
	1/5	4	0.00665	0.06143	0.02204	9.23760	3.3143
		6	0.00608	0.06131	0.01977	10.0839	3.2516
		8	0.00567	0.06131	0.01901	10.8131	3.3527
		10	0.00536	0.06131	0.01878	11.4384	3.5037
		12	0.00512	0.06131	0.01872	11.9746	3.6563
s = 3	**f**	**i**	**AQL**	**LQL**	**IQL**	**μ_2/μ_1**	**μ_0/μ_1**
k = 2	2/3	4	0.00338	0.04564	0.01483	13.5030	4.3876
		6	0.00332	0.04563	0.01449	13.7440	4.3645
		8	0.00327	0.04563	0.01440	13.9541	4.4037
		10	0.00322	0.04563	0.01438	14.1708	4.4658
		12	0.00318	0.04563	0.01437	14.3491	4.5189
	1/3	4	0.00450	0.04567	0.01586	10.1489	3.5244
		6	0.00426	0.04563	0.01481	10.7113	3.4765
		8	0.00408	0.04563	0.01449	11.1838	3.5515
		10	0.00393	0.04563	0.01440	11.6107	3.6641
		12	0.00381	0.04563	0.01438	11.9764	3.7743
	1/4	4	0.00504	0.04569	0.01637	09.0655	3.2480
		6	0.00469	0.04563	0.01499	09.7292	3.1962
		8	0.00444	0.04563	0.01455	10.2770	3.2770
		10	0.00424	0.04563	0.01442	10.7618	3.4009
		12	0.00408	0.04563	0.01438	11.1838	3.5245
	1/5	4	0.00547	0.04571	0.01681	08.3565	3.0731
		6	0.00503	0.04563	0.01515	09.0716	3.0119
		8	0.00472	0.04563	0.01460	09.6674	3.0932
		10	0.00449	0.04563	0.01443	10.1626	3.2138
		12	0.00430	0.04563	0.01439	10.6116	3.3465

Table 3 Average Sample Number Values of BSkSP- 3

f / p	**2/3**	**1/3**	**1/4**	**1/5**
0.0010	41.96	41.83	41.75	41.67
0.0025	41.90	41.58	41.38	41.18
0.0050	41.79	41.18	40.78	40.39
0.0075	41.69	40.78	40.20	39.63
0.0100	41.59	40.39	39.63	38.90
0.0200	41.18	38.92	37.54	36.26
0.0300	40.79	37.56	35.67	33.97
0.0400	40.42	36.31	34.00	31.97
0.0500	40.05	35.15	32.50	30.22

4. CONCLUSION

In this paper, we have developed tables designing methodology for selecting parameters of Bayesian Skip-lot Sampling Plan of type 3 (BSkSP-3) with BChSP- 4 (0,2)2 as a reference plan for specified values of AQL, IQL and LQL. An expression for Average Probability of Acceptance for Bayesian Skip lot Sampling Plan – 3 (BSkSP-3) is derived and performance measures and tables are developed which can be used for the selection of BSkSP-3 plan. In comparison with BSkSP-3 with Bayesian Modified Chain Sampling as reference plan, BSkSP-3 with BChSP - 4(0,2)2 gives minimum values of AQL, LQL and IQL. ASN values are calculated for BSkSP-3 and shown in table 3. The proposed plan gives better protection to consumers and producers.

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