Package 'uneqmixr'

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Type Package

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Description This package allows general practitioners to get probability estimations and graphical displays in the risk assessment. This study mainly focuses on the risk assessment when aggregating unequal incremental samples in the production process.
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Description

AOQL_scenarios provides the Average Outgoing Quality (AOQ) curve and calculates Average Outgoing Quality Level (AOQL) value based on expected microbial counts in each scenario.

Usage

```
AOQL_scenarios(c,llim, sd, m, scenario, n, type, K, n_sim)
```

age microbial counts

Arguments

С	acceptance number
llim	the upper limit for graphing the arithmetic mean of cell count
sd	standard deviation on the log10 scale (default value 0.8).
m	the vector of incremental samples (with equal/unequal weights).
scenario	what scenario we have considered such as "1" or "2" or "3"
n	number of aggregate samples which are used for inspection.
type	what type of the results you would like to consider such as "theory" or "simulation".
K	dispersion parameter of the Poisson gamma distribution (default value 0.25)
n_sim	number of simulations (large simulations provide more precise estimation).

Details

Since p_a is the probability of acceptance, λ is the arithmetic mean of cell count and the outgoing contaminated arithmetic mean of cell count of incremental samples is given by AOQ as the product λp_a . The quantity AOQL is defined as the maximum proportion of outgoing contaminated incremental samples and is given by

$$AOQL = \max_{\lambda \ge 0} \lambda p_a$$

Value

AOQ curve and AOQL value based on expected microbial counts in each scenario.

See Also

```
scenario_1_pa, scenario_2_pa, scenario_3_pa
```

Examples

```
compare_ex_var_scenario_1
```

Graphical displays of expectation or variance of different sampling schemes under scenario 1.

Description

compare_ex_var_scenario_1 provides graphical displays based on expectation or variance under scenario 1 of modelling the quantity of material sampled in the risk assessment study.

Usage

```
compare_ex_var_scenario_1(mulow, muhigh, sd, m1, m2, measure)
```

Arguments

mulow	the lower value of the mean concentration (μ) for use in the graphical display's x-axis.
muhigh	the upper value of the mean concentration (μ) for use in the graphical display's x-axis.
sd	standard deviation on the log10 scale (default value 0.8).
m1	the vector of the first set of incremental samples (with equal/unequal weights).
m2	the vector of the second set of incremental samples (with equal/unequal weights).
measure	what type of measure you would like to consider for the graph, such as "expectation" or "variance".

Details

compare_ex_var_scenario_1 provides graphical displays based on expectation or variance under scenario 1 of modelling the quantity of material sampled in the risk assessment study. Under this scenario (a lot with homogeneous contaminations), we employed Poisson distribution to the model number of micro-organisms in the incremental samples. (this section will be updated later on)

Graphical displays based on expectation or variance under lot with homogeneous contaminations.

Examples

```
compare_ex_var_scenario_2
```

Graphical displays of expectation or variance of different sampling schemes under scenario 2.

Description

compare_ex_var_scenario_2 provides graphical displays based on expectation or variance under scenario 2 of modelling the quantity of material sampled in the risk assessment study.

Usage

```
compare_ex_var_scenario_2(mulow, muhigh, sd, m1, m2, measure)
```

Arguments

mulow	the lower value of the mean concentration (μ) for use in the graphical display's x-axis.
muhigh	the upper value of the mean concentration (μ) for use in the graphical display's x-axis.
sd	standard deviation on the log10 scale (default value 0.8).
m1	the vector of the first set of incremental samples (with equal/unequal weights).
m2	the vector of the second set of incremental samples (with equal/unequal weights).
measure	what type of measure you would like to consider for the graph, such as "expectation" or "variance".

Details

compare_ex_var_scenario_2 provides graphical displays based on expectation or variance under scenario 2 of modelling the quantity of material sampled in the risk assessment study. Under this scenario (a lot with homogeneous contaminations), we employed Poisson lognormal distribution to the model number of micro-organisms in the incremental samples. (this section will be updated later on)

Graphical displays based on expectation or variance when lot with heterogeneous and high-level contamination.

Examples

```
compare_ex_var_scenario_3
```

Graphical displays of expectation or variance of different sampling schemes under scenario 3.

Description

compare_ex_var_scenario_3 provides graphical displays based on expectation or variance under scenario 3 of modelling the quantity of material sampled in the risk assessment study.

Usage

```
compare_ex_var_scenario_3(mulow, muhigh, sd, m1, m2, K, measure)
```

Arguments

mulow	the lower value of the mean concentration (μ) for use in the graphical display's x-axis.
muhigh	the upper value of the mean concentration (μ) for use in the graphical display's x-axis.
sd	standard deviation on the log10 scale (default value 0.8).
m1	the vector of the first set of incremental samples (with equal/unequal weights).
m2	the vector of the second set of incremental samples (with equal/unequal weights).
K	shape parameter (default value 0.25).
measure	what type of measure you would like to consider for the graph, such as "expectation" or "variance".

Details

compare_ex_var_scenario_3 provides a probability of acceptance under scenario 3 of modelling the quantity of material sampled in the risk assessment study. Under this scenario (a lot with homogeneous contaminations), we employed Poisson gamma distribution to the model number of micro-organisms in the incremental samples. Based on the food safety literature, the expected cell count is given by $\lambda = 10^{\mu + \log(10)\sigma^2/2}$. (this section will be updated later on)

Graphical displays based on expectation or variance when lot with heterogeneous and low-level contamination.

Examples

compare_prevalence_scenario_4

Graphical displays of prevalence before inspection of different sampling schemes under scenario 4.

Description

compare_prevalence_scenario_4 provides graphical displays based on prevalence before inspection under scenario 4 of modelling the quantity of material sampled in the risk assessment study.

Usage

```
compare_prevalence_scenario_4(mulow, muhigh, sd, m1, m2, 1, type, n_sim)
```

Arguments

mulow	the lower value of the mean concentration (μ) for use in the graphical display's x-axis.
muhigh	the upper value of the mean concentration (μ) for use in the graphical display's x-axis.
sd	standard deviation on the log10 scale (default value 0.8).
m1	the vector of the first set of incremental samples (with equal/unequal weights).
m2	the vector of the second set of incremental samples (with equal/unequal weights).
1	the number of lots in the production process.
type	what type of the results you would like to consider such as "theory" or "simulation".
n_sim	number of simulations (large simulations provide more precise estimation).

Details

compare_prevalence_scenario_4 provides graphical displays based on prevalence before inspection under scenario 4 of modelling the quantity of material sampled in the risk assessment study. (this section will be updated later on)

Graphical displays based on prevalence before inspection when lot with homogeneous contamination and contamination levels fluctuate from lot to lot by using theoretical or simulation-based results.

Examples

compare_prevalence_scenario_5

Graphical displays of prevalence before inspection of different sampling schemes under scenario 5.

Description

compare_prevalence_scenario_5 provides graphical displays based on prevalence before inspection under scenario 5 of modelling the quantity of material sampled in the risk assessment study.

Usage

```
compare_prevalence_scenario_5(mulow, muhigh, sd, m1, m2, l, type, n_sim)
```

Arguments

mulow	the lower value of the mean concentration (μ) for use in the graphical display's x-axis.
muhigh	the upper value of the mean concentration (μ) for use in the graphical display's x-axis.
sd	standard deviation on the log10 scale (default value 0.8).
m1	the vector of the first set of incremental samples (with equal/unequal weights).
m2	the vector of the second set of incremental samples (with equal/unequal weights).
1	the number of lots in the production process.
type	what type of the results you would like to consider such as "theory" or "simulation".
n_sim	number of simulations (large simulations provide more precise estimation).

Details

compare_prevalence_scenario_5 provides graphical displays based on prevalence before inspection under scenario 5 of modelling the quantity of material sampled in the risk assessment study. (this section will be updated later on)

scenario_1_OC

Value

Graphical displays based on prevalence before inspection when lot with heterogeneous contamination and contamination levels fluctuate from lot to lot by using theoretical or simulation-based results.

Examples

scenario_1_0C

Construction of Operating Characteristic (OC) curve under lot with homogeneous contaminations based on simulations results.

Description

scenario_1_0C provides the Operating Characteristic (OC) curves under scenario 1 of modelling the quantity of material sampled in the risk assessment study.

Usage

```
scenario_1_OC(c, mulow, muhigh, sd, m1, m2, n, type, n_sim)
```

С	acceptance number
mulow	the lower value of the mean concentration (μ) for use in the graphical display's x-axis.
muhigh	the upper value of the mean concentration (μ) for use in the graphical display's x-axis.
sd	standard deviation on the log10 scale (default value 0.8).
m1	the vector of the first set of incremental samples (with equal/unequal weights).
m2	the vector of the second set of incremental samples (with equal/unequal weights).
n	number of aggregate samples which are used for inspection.
type	what type of the results you would like to consider such as "theory" or "simulation".
n_sim	number of simulations (large simulations provide more precise estimation).

scenario_1_pa

Details

scenario_1_0C provides the Operating Characteristic (OC) curves under scenario 1 of modelling the quantity of material sampled in the risk assessment study. The purpose of this function used for compares two different sets of sampling schemes when lot with homogeneous contaminations. Nevertheless, each sampling scheme's total quantity (weight of aggregate sample (say M)) must be equal. The probability of acceptance is plotted against mean log10 concentration and expected cell counts. We employed Poisson distribution to the model number of micro-organisms in the incremental samples. Based on the food safety literature, the expected cell count is given by $\lambda = 10^{\mu + log(10)\sigma^2/2}$. (this section will be updated later on)

Value

Operating Characteristic (OC) curves when lot with homogeneous contaminations.

See Also

```
scenario_1_pd
```

Examples

scenario_1_pa

Probability of acceptance estimation when lot with homogeneous contaminations.

Description

scenario_1_pa provides a probability of acceptance under scenario 1 of modelling the quantity of material sampled in the risk assessment study.

Usage

```
scenario_1_pa(c, mu, sd, m, n, type, n_sim)
```

scenario_1_pd

m	the vector of incremental samples (with equal/unequal weights).
n	number of aggregate samples which are used for inspection.
type	what type of the results you would like to consider such as "theory" or "simulation".
n_sim	number of simulations (large simulations provide more precise estimation).

Details

scenario_1_pa provides a probability of acceptance under scenario 1 of modelling the quantity of material sampled in the risk assessment study. Under this scenario (a lot with homogeneous contaminations), we employed Poisson distribution to the model number of micro-organisms in the incremental samples. Based on the food safety literature, the expected cell count is given by $\lambda = 10^{\mu + log(10)\sigma^2/2}$. (this section will be updated later on)

Value

Probability of acceptance under lot with homogeneous contaminations.

Examples

scenario_1_pd

Probability of detection estimation when lot with homogeneous contaminations.

Description

scenario_1_pd provides a probability of detection under scenario 1 of modelling the quantity of material sampled in the risk assessment study.

Usage

```
scenario_1_pd(mu, sd, m, type, n_sim)
```

mu	the the mean concentration (μ) .
sd	standard deviation on the log10 scale (default value 0.8).
m	the vector of incremental samples (with equal/unequal weights).
type	what type of the results you would like to consider such as "theory" or "simulation".
n_sim	number of simulations (large simulations provide more precise estimation).

scenario_1_pd_curve 11

Details

scenario_1_pd provides a probability of detection under scenario 1 of modelling the quantity of material sampled in the risk assessment study. Under this scenario (lot with homogeneous contaminations), we employed Poisson distribution to the model number of micro-organisms in the incremental samples. Based on the food safety literature, the expected cell count is given by $\lambda = 10^{\mu + log(10)\sigma^2/2}$. (this section will be updated later on)

Value

Probability of detection when lot with homogeneous contaminants by using theoretical or simulation-based results.

Examples

scenario_1_pd_curve

Construction of Operating Characteristic (OC) curve under lot with homogeneous contaminations based on simulations results.

Description

scenario_1_pd_curve provides the probability of detection curves under scenario 1 of modelling the quantity of material sampled in the risk assessment study.

Usage

```
scenario_1_pd_curve(mulow, muhigh, sd, m1, m2, type, n_sim)
```

mulow	the lower value of the mean concentration (μ) for use in the graphical display's x-axis.
muhigh	the upper value of the mean concentration (μ) for use in the graphical display's x-axis.
sd	standard deviation on the log10 scale (default value 0.8).
m1	the vector of the first set of incremental samples (with equal/unequal weights).
m2	the vector of the second set of incremental samples (with equal/unequal weights).
type	what type of the results you would like to consider such as "theory" or "simulation".
n_sim	number of simulations (large simulations provide more precise estimation).

scenario_2_OC

Details

scenario_1_pd_curve provides the probability of detection curves under scenario 1 of modelling the quantity of material sampled in the risk assessment study. (this section will be updated later on)

Value

probability of detection curves when lot with homogeneous contaminations.

See Also

```
scenario_1_pd
```

Examples

scenario_2_OC

Construction of Operating Characteristic (OC) curve under lot with heterogeneous and high-level contamination.

Description

scenario_2_0C provides the Operating Characteristic (OC) curves under scenario 2 of modelling the quantity of material sampled in the risk assessment study.

Usage

```
scenario_2_OC(c, mulow, muhigh, sd, m1, m2, n, type, n_sim)
```

С	acceptance number
mulow	the lower value of the mean concentration (μ) for use in the graphical display's x-axis.
muhigh	the upper value of the mean concentration (μ) for use in the graphical display's x-axis.
sd	standard deviation on the log10 scale (default value 0.8).
m1	the vector of the first set of incremental samples (with equal/unequal weights).
m2	the vector of the second set of incremental samples (with equal/unequal weights).
n	number of aggregate samples which are used for inspection.
type	what type of the results you would like to consider such as "theory" or "simulation".
n_sim	number of simulations (large simulations provide more precise estimation).

scenario_2_pa 13

Details

scenario_2_0C provides the Operating Characteristic (OC) curves under scenario 2 of modelling the quantity of material sampled in the risk assessment study. The purpose of this function used for compares two different sets of sampling schemes when lot with heterogeneous and high-level contamination. Nevertheless, each sampling scheme's total quantity (weight of aggregate sample (say M)) must be equal. The probability of acceptance is plotted against mean $\log 10$ concentration and expected cell counts. We employed Poisson lognormal distribution to the model number of micro-organisms in the incremental samples. Based on the food safety literature, the expected cell count is given by $\lambda = 10^{\mu + \log(10)\sigma^2/2}$. (this section will be updated later on)

Value

Operating Characteristic (OC) curves when lot with heterogeneous and high-level contamination.

See Also

```
scenario_2_pd
```

Examples

scenario_2_pa

Probability of acceptance estimation when lot with heterogeneous and high-level contamination.

Description

scenario_2_pa provides a probability of acceptance under scenario 2 of modelling the quantity of material sampled in the risk assessment study.

Usage

```
scenario_2_pa(c, mu, sd, m, n, type, n_sim)
```

scenario_2_pd

m	the vector of incremental samples (with equal/unequal weights).
n	number of aggregate samples which are used for inspection.
type	what type of the results you would like to consider such as "theory" or "simulation".But,not yet established for this scenario at this time.
n_sim	number of simulations (large simulations provide more precise estimation).

Details

scenario_2_pa provides a probability of acceptance under scenario 2 of modelling the quantity of material sampled in the risk assessment study. Under this scenario (a lot with heterogeneous, high-level contamination), we employed Poisson lognormal distribution to the model number of micro-organisms in the incremental samples. Based on the food safety literature, the expected cell count is given by $\lambda = 10^{\mu + \log(10)\sigma^2/2}$. (this section will be updated later on)

Value

Probability of acceptance when lot with heterogeneous and high-level contamination.

Examples

scenario_2_pd

Probability of detection estimation when lot with heterogeneous and high-level contamination.

Description

scenario_2_pd provides a probability of detection under scenario 2 of modelling the quantity of material sampled in the risk assessment study.

Usage

```
scenario_2_pd(mu, sd, m, type, n_sim)
```

mu	the the mean concentration (μ) .
sd	standard deviation on the log10 scale (default value 0.8).
m	the vector of incremental samples (with equal/unequal weights).
type	what type of the results you would like to consider such as "theory" or "simulation".
n_sim	number of simulations (large simulations provide more precise estimation).

scenario_2_pd_curve 15

Details

scenario_2_pd provides a probability of detection under scenario 2 of modelling the quantity of material sampled in the risk assessment study. Under this scenario (a lot with heterogeneous, high-level contamination), we employed Poisson lognormal distribution to the model number of micro-organisms in the incremental samples. Based on the food safety literature, the expected cell count is given by $\lambda = 10^{\mu + log(10)\sigma^2/2}$. (this section will be updated later on)

Value

Probability of detection when lot with heterogeneous and high-level contamination by using theoretical or simulation-based results.

Examples

scenario_2_pd_curve Construction of Operating Characteristic (OC) curve under lot with heterogeneous and high-level contamination.

Description

scenario_2_pd_curve provides the probability of detection curves under scenario 2 of modelling the quantity of material sampled in the risk assessment study.

Usage

```
scenario_2_pd_curve(mulow, muhigh, sd, m1, m2, type, n_sim)
```

mulow	the lower value of the mean concentration (μ) for use in the graphical display's x-axis.
muhigh	the upper value of the mean concentration (μ) for use in the graphical display's x-axis.
sd	standard deviation on the log10 scale (default value 0.8).
m1	the vector of the first set of incremental samples (with equal/unequal weights).
m2	the vector of the second set of incremental samples (with equal/unequal weights).
type	what type of the results you would like to consider such as "theory" or "simulation".
n_sim	number of simulations (large simulations provide more precise estimation).

scenario_3_OC

Details

scenario_2_pd_curve provides the probability of detection curves under scenario 2 of modelling the quantity of material sampled in the risk assessment study. (this section will be updated later on)

Value

probability of detection curves when lot with heterogeneous and high-level contamination.

See Also

```
scenario_2_pd
```

Examples

scenario_3_OC

Construction of Operating Characteristic (OC) curve under lot with heterogeneous and low-level contamination.

Description

scenario_3_0C provides the Operating Characteristic (OC) curves under scenario 3 of modelling the quantity of material sampled in the risk assessment study.

Usage

```
scenario_3_OC(c, mulow, muhigh, sd, m1, m2, K, n, type, n_sim)
```

С	acceptance number
mulow	the lower value of the mean concentration (μ) for use in the graphical display's x-axis.
muhigh	the upper value of the mean concentration (μ) for use in the graphical display's x-axis.
sd	standard deviation on the log10 scale (default value 0.8).
m1	the vector of the first set of incremental samples (with equal/unequal weights).
m2	the vector of the second set of incremental samples (with equal/unequal weights).
K	shape parameter (default value 0.25).
n	number of aggregate samples which are used for inspection.

scenario_3_pa 17

type	what type of the results you would like to consider such as "theory" or "simulation".
n_sim	number of simulations (large simulations provide more precise estimation).

Details

scenario_3_0C provides the Operating Characteristic (OC) curves under scenario 3 of modelling the quantity of material sampled in the risk assessment study. The purpose of this function used for compares two different sets of sampling schemes when lot with heterogeneous and low-level contamination. Nevertheless, each sampling scheme's total quantity (weight of aggregate sample (say M)) must be equal. We employed Poisson gamma distribution to the model number of microorganisms in the incremental samples. Based on the food safety literature, the expected cell count is given by $\lambda = 10^{\mu + log(10)\sigma^2/2}$. (this section will be updated later on)

Value

Operating Characteristic (OC) curves when lot with heterogeneous and low-level contamination.

See Also

```
scenario_3_pd
```

Examples

scenario_3_pa

Probability of acceptance estimation when lot with heterogeneous and low-level contamination.

Description

scenario_3_pa provides a probability of acceptance under scenario 3 of modelling the quantity of material sampled in the risk assessment study.

```
scenario_3_pa(c, mu, sd, m, K, n, type, n_sim)
```

18 scenario_3_pd

Arguments

С	acceptance number
mu	the the mean concentration (μ) .
sd	standard deviation on the log10 scale (default value 0.8).
m	the vector of incremental samples (with equal/unequal weights).
K	shape parameter (default value 0.25).
n	number of aggregate samples which are used for inspection.
type	what type of the results you would like to consider such as "theory" or "simulation".But,not yet established for this scenario at this time.
n_sim	number of simulations (large simulations provide more precise estimation).

Details

scenario_3_pa provides a probability of acceptance under scenario 3 of modelling the quantity of material sampled in the risk assessment study. Under this scenario (a lot with heterogeneous, low-level contamination), we employed Poisson gamma distribution to the model number of microorganisms in the incremental samples. Based on the food safety literature, the expected cell count is given by $\lambda = 10^{\mu + log(10)\sigma^2/2}$. (this section will be updated later on)

Value

Probability of acceptance when lot with heterogeneous and low-level contamination.

Examples

scenario_3_pd Probability of detection estimation when lot with heterogeneous and low-level contamination.

Description

scenario_3_pd provides a probability of detection under scenario 3 of modelling the quantity of material sampled in the risk assessment study.

```
scenario_3_pd(mu, sd, m, K, type, n_sim)
```

scenario_3_pd_curve 19

Arguments

mu	the the mean concentration (μ) .
sd	standard deviation on the log10 scale (default value 0.8).
m	the vector of incremental samples(with equal/unequal weights).
K	shape parameter (default value 0.25).
type	what type of the results you would like to consider such as "theory" or "simulation".
n_sim	number of simulations (large simulations provide more precise estimation).

Details

scenario_3_pd provides a probability of detection under scenario 3 of modelling the quantity of material sampled in the risk assessment study. Under this scenario (a lot with heterogeneous, low-level contamination), we employed Poisson gamma distribution to the model number of microorganisms in the incremental samples. Based on the food safety literature, the expected cell count is given by $\lambda = 10^{\mu + log(10)\sigma^2/2}$. (this section will be updated later on)

Value

Probability of detection when lot with heterogeneous and low-level contamination by using theoretical or simulations based results.

Examples

scenario_3_pd_curve Construction of Operating Characteristic (OC) curve under lot with heterogeneous and low-level contamination.

Description

scenario_3_pd_curve provides the probability of detection curves under scenario 3 of modelling the quantity of material sampled in the risk assessment study.

```
scenario_3_pd_curve(mulow, muhigh, sd, m1, m2, K, type, n_sim)
```

Arguments

mulow	the lower value of the mean concentration (μ) for use in the graphical display's x-axis.
muhigh	the upper value of the mean concentration (μ) for use in the graphical display's x-axis.
sd	standard deviation on the log10 scale (default value 0.8).
m1	the vector of the first set of incremental samples (with equal/unequal weights).
m2	the vector of the second set of incremental samples (with equal/unequal weights).
K	shape parameter (default value 0.25).
type	what type of the results you would like to consider such as "theory" or "simulation".
n_sim	number of simulations (large simulations provide more precise estimation).

Details

scenario_3_pd_curve provides the probability of detection curves under scenario 3 of modelling the quantity of material sampled in the risk assessment study. (this section will be updated later on)

Value

probability of detection curves when lot with heterogeneous and low-level contamination.

See Also

```
scenario_3_pd
```

Examples

scenario_4_prevalence Prevalence estimation before inspection when lot with homogeneous contamination and contamination levels fluctuate from lot to lot.

Description

scenario_4_prevalence provides a prevalence before inspection under scenario 4 of modelling the quantity of material sampled in the risk assessment study.

```
scenario_4_prevalence(mu, sd, m, 1, type, n_sim)
```

scenario_5_prevalence 21

Arguments

mu	the the mean concentration (μ) .
sd	standard deviation on the log10 scale (default value 0.8).
m	the vector of incremental samples (with equal/unequal weights).
1	the number of lots in the production process.
type	what type of the results you would like to consider such as "theory" or "simulation".
n_sim	number of simulations (large simulations provide more precise estimation).

Details

scenario_1_pd provides a prevalence before inspection under scenario 4 of modelling the quantity of material sampled in the risk assessment study. (this section will be updated later on)

Value

Prevalence estimation before inspection when lot with homogeneous contamination and contamination levels fluctuate from lot to lot by using theoretical or simulation-based results.

Examples

scenario_5_prevalence Prevalence estimation before inspection when lot with heterogeneous contamination and contamination levels fluctuate from lot to lot.

Description

scenario_5_prevalence provides a prevalence before inspection under scenario 5 of modelling the quantity of material sampled in the risk assessment study.

Usage

```
scenario_5_prevalence(mu, sd, m, 1, type, n_sim)
```

mu	the the mean concentration (μ) .
sd	standard deviation on the log10 scale (default value 0.8).
m	the vector of incremental samples (with equal/unequal weights).
1	the number of lots in the production process.
type	what type of the results you would like to consider such as "theory" or "simulation".
n_sim	number of simulations (large simulations provide more precise estimation).

Details

scenario_5_prevalence provides a prevalence before inspection under scenario 5 of modelling the quantity of material sampled in the risk assessment study. (this section will be updated later on)

Value

Prevalence estimation before inspection when lot with heterogeneous contamination and contamination levels fluctuate from lot to lot by using theoretical or simulation-based results.

Examples

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