

Explanation Seedcalc

calculate disease percentage and spread



You receive our results with the amount of positive reactions per sample. You can calculate the disease percentage of the sample and spread in the lot by using the Seedcalc8 program.

Go to the website of the International Seed Testing Association (ISTA)
<https://www.seedtest.org/en/services-header/tools/statistics-committee/statistical-tools-seed-testing.html> , scroll down till you see 'Seedcalc8' and download the file (Excel).

You can use the Seedcalc program for Elisa virus results of potato tuber and leave samples, but also potato tuber results of Erwinia and PCR virus.

Use the tab ' *Qual Impurity Estimation* ' .
Fill in the yellow boxes on the left side.

of Seed Pools => number of tested reactions
of Seeds per Pool => number of tubers/leaves per merge
of Deviants Pools => number of positive reactions
('total seeds tested' = number of tested tubers/leaves, program will calculate this)

After filling in the sample data the following values will be calculated:
Computed % in sample => calculated disease% in the sample (95% certainty)
2-sided CI for True % Impurity => spread of disease% in the lot (95% certainty)
Upper Bound of True % Impurity => 95% certainty that the disease% in the lot is lower than the mentioned %
(Lower bound says something about the 'healthy part of the lot')

Now with an example (also see picture below):
110 tubers Elisa, merge 4 leaves (so every tested reaction contains 4 leaves)
Number of tested reactions is 17.
Number of positive reactions is 4.

17 reactions, 4 leaves per merge = 68 plants tested
96 plants (24 reactions) is the maximum for Elisa tuber testing, if the number tested is lower than a part of the sample didn't grow (enough) in the greenhouse.

Number of disease: 4 reactions (of 17).
⇒ Disease% in the sample is : 6,49% (95% certainty)
⇒ Disease% in the lot is between : 1,75% and 15,87% (95% certainty)
⇒ Disease% of the lot is lower than : 14,30% (95% certainty)

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Impurity Estimation & Confidence Intervals (Assay measures impuri

(Number of seed sampled should not exceed 10% of total number in population)

# of Seed Pools	17	Computed % in sample	6,49	%
# of Seeds per Pool	4			
Total Seeds Tested	68	<i>Measured property on seed pools</i>		
# Deviants Pools	4	Desired Confidence Level	95	%
Upper Bound of True % Impurity			14,30	
<i>(95% confident that the lot impurity is below 14,3%.)</i>				
2-sided CI for True % Impurity			1,75	to 15,87
Lower Bound of True % Purity			85,70	
<i>(95% confident that the lot purity is above 85,7%.)</i>				
2-sided CI for True % Purity			84,13	to 98,25