

Assessment of the involvement of sampling and the presence of pathogens in food risk management and food inspection

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OBJECTIVES

The objectives of this project are helping industry to choose the correct sampling plan, the correct interpretation of the results of the food analytics and use said interpretation to make a safe product, in addition to complying with the legislation.

SAMPLING PLANS

An **attribute sampling plan** is applicable for qualitative determinations (absence/presence).

- Two class sampling

A **variable sampling plan** is applicable for quantitative determinations (acceptable/marginable acceptable/not acceptable). Measure microbiological concentrations.

- Three class sampling

THE CASE OF *LISTERIA MONOCYTOGENES* AND THE ANALYSIS RESULTS OF A VARIABLE SAMPLING PLAN

Table 1. Results of microbiological analysis of samples, to make decisions, regarding the acceptance or rejection of a lot.

| Sample number | <i>Listeria monocytogenes</i> count in cfu/g | | |
|-------------------------|--|------------|------------|
| | Sampling 1 | Sampling 2 | Sampling 3 |
| 1 | 1 | 99 | 0 |
| 2 | 0 | 99 | 10 |
| 3 | 0 | 99 | 5 |
| 4 | 0 | 99 | 25 |
| 5 | 99 | 99 | 40 |
| Mean (X) | 20,0 | 99,0 | 16,0 |
| Standard Deviation (SD) | 44,2 | 0,0 | 16,4 |
| X+1SD | 64,2* | 99,0** | 32,4** |
| X+2SD | 108,3* | 99,0** | 48,7** |
| X+3SD | 152,5* | 99,0** | 65,1** |

* Unacceptable batch

** Acceptable batch

CONCLUSIONS

Analytical determinations for the presence of pathogens in food serve to find a relationship between production systems and their level of food safety. Historical monitoring of analytical results is essential to know the real presence of a pathogen in an industry. Companies need to be made aware of the need for sampling in order to know the level of security.