

ISO/TR 29263:2021 (E)

Cereals and cereal products — Sampling studies

Contents

	Foreword
	Introduction
1	Scope
2	Normative references
3	Terms and definitions
4	Context
5	Study n°1: extract from "Grain sampling and assessment: sampling grain in lorries" – Project report n° 339"
5.1	General
5.2	Context
5.3	Studies conducted and objectives
5.4	Methodology
5.4.1	Conducting tests
5.4.1.1	Collection of data relating to current sampling practice
5.4.1.2	Sample collection
5.4.1.2.1	Store 1
5.4.1.2.2	Store 2
5.4.1.2.3	Store 3
5.4.1.2.4	Store 4
5.4.1.3	Assessment of samples
5.4.1.4	Estimating the reliability of sampling
5.4.2	Results and conclusions
5.4.2.1	Sample analysis results
5.4.2.1.1	Collection of data relating to current sampling practice
5.4.2.1.2	Observations on the sampling
5.4.2.1.2.1	Store 1
5.4.2.1.2.2	Store 2
5.4.2.1.2.3	Store 3
5.4.2.1.2.4	Store 4
5.4.2.1.3	Mass of samples collected
5.4.2.2	Analysis of the quality parameters of the grain
5.4.2.3	Estimating the sampling reliability
5.4.2.4	Discussion and conclusions
5.4.2.4.1	Inherent variation in grain
5.4.2.4.2	Recommendations and protocol for lorry sampling
5.4.2.4.2.1	Recommendations
5.4.2.4.2.2	Protocol for collecting samples from lorry-loads of grain
6	Study n°2: extract from "Sampling grain in static and flowing condition – alternatives to the regulatory protocol"
6.1	General
6.2	Context
6.2.1	Regulatory aspect
6.2.2	Normative aspect
6.3	Studies conducted and objectives
6.3.1	Study A
6.3.2	Study B
6.4	Study A: silos and lorries of wheat and corn – Fusariotoxins and quality assessment
6.4.1	Organising field tests

- 6.4.1.1 Conducting tests
 - 6.4.1.1.1 Setting up the tests
 - 6.4.1.1.2 Methods corresponding to the protocols tested
 - 6.4.1.1.3 Description of the tests conducted
- 6.4.2 Results and conclusions
 - 6.4.2.1 Sample analysis results
 - 6.4.2.1.1 Results of the comparison tests involving 2 protocols
 - 6.4.2.1.2 Results of the heterogeneity analyses
 - 6.4.2.2 Statistical validation
 - 6.4.2.2.1 Results of comparison tests involving 3 sampling plans
 - 6.4.2.2.1.1 Results of comparison tests involving 3 protocols for DON
 - 6.4.2.2.1.2 Analysis of the statistical test results
 - 6.4.2.2.1.3 Results of the sampling method comparison tests: manual and automatic
 - 6.4.2.2.1.4 Results of comparison tests involving 2 protocols for the other analyses
 - 6.4.2.2.2 Heterogeneity test results
 - 6.4.2.2.2.1 Descriptive statistics
 - 6.4.2.2.2.2 Intra-silo variability study
 - 6.4.2.2.2.3 Analysis of the statistical test results
 - 6.4.2.2.2.4 Error risk study
 - 6.4.2.3 Study A conclusions
- 6.5 Study B : silos of corn – Fusariotoxins; flowing grains
 - 6.5.1 Organising field tests
 - 6.5.1.1 Conducting tests
 - 6.5.1.1.1 Setting up the tests
 - 6.5.1.1.2 Method applied
 - 6.5.1.2 Sample analyses and study of reducing the size of samples
 - 6.5.2 Results and conclusions
 - 6.5.2.1 Sample analysis results
 - 6.5.2.1.1 Results of the average samples
 - 6.5.2.1.2 Evolution of mycotoxin content during flowing of grains
 - 6.5.2.1.2.1 Results for Fumonisin
 - 6.5.2.1.2.2 Results for Zearalenone (ZEA)
 - 6.5.2.1.2.3 Results for deoxynivalenol (DON)
 - 6.5.2.2 Statistical validation
 - 6.5.2.2.1 Fumonisin
 - 6.5.2.2.1.1 Descriptive statistics
 - 6.5.2.2.1.2 Error estimation of the average of a lot
 - 6.5.2.2.1.3 Buyer or seller risks
 - 6.5.2.2.2 Zearalenone
 - 6.5.2.2.2.1 Descriptive statistics
 - 6.5.2.2.2.2 Conclusions
 - 6.5.2.2.3 Deoxynivalenol
 - 6.5.2.2.3.1 Descriptive statistics
 - 6.5.2.2.3.2 Conclusions
 - 6.5.2.3 Reducing the pressure of sampling
 - 6.5.2.3.1 Method of calculation
 - 6.5.2.3.2 Results of the contamination of wheat by deoxynivalenol
 - 6.5.2.3.3 Results of the contamination of maize by deoxynivalenol
 - 6.5.2.3.4 Results of the contamination of maize by fumonisin
 - 6.5.2.3.4.1 Conclusions
 - 6.5.2.3.5 Results of the contamination of maize by zearalenone
 - 6.5.2.3.6 Conclusions of the reducing of the pressure of sampling
 - 6.5.2.4 General conclusions of study B on silos of maize: precision of the estimated average of a lot depending on the number of samples taken
 - 6.5.2.5 Influence of the reduction of the size of the laboratory sample
 - 6.5.2.5.1 Methodology
 - 6.5.2.5.2 Results of the study on reduction of laboratory sample
 - 6.5.2.5.2.1 Comparison of averages
 - 6.5.2.5.2.2 Averages and uncertainties of references
 - 6.5.2.5.3 Conclusions of the study on reduction of laboratory sample
- 7 Study n°3: extract from "Investigation of the distribution of deoxynivalenol and ochratoxin a contamination within a 26-T truckload of wheat kernels" – Project report
 - 7.1 Context

7.2	Methodology
7.2.1	Instruments for sampling and sample homogenization process
7.2.2	Reagents and materials
7.2.3	Sampling procedure
7.2.4	Sample comminution
7.3	Results and Discussion
7.3.1	Distribution of DON and OTA infected kernels within the lot
7.3.2	Sample comminution study for the dry milling process
7.4	Uncertainty comparison on the basis of number of incremental samples
7.5	Conclusions

Page count: 99