

Sampling



Frans Verstraete
European Commission
DG Health and Consumer
Protection

Directive 76/371/EC



- **Sampling of bulk lots**
- The size of the sampled portion must be such that each of its constituent parts can be sampled
- Number of incremental samples:
 - **Consignments < 2.5 tonnes: 7 incremental samples**
 - **Consignments > 2.5 tonnes: square root of 20 times the number of tonnes up to a maximum of 40 incremental samples**

Directive 76/371/EC



- A single aggregate sample per sampled portion is required. The total amount in the incremental samples making up the aggregate sample shall be not less than 4 kg.
- At least three final samples shall then be prepared. Analysis of at least one final sample for analysis shall be not less than 500 grams.

Directive 76/371/EC



- **In relation to the control of undesirable substances or products likely to be distributed non-uniformly throughout the feedingstuffs (bulk lots)**
 - See sampling procedure of bulk lots.
 - However the number of aggregate samples will vary with the size of the sampled portion. The minimum number of aggregate samples per sampled portion is given below. The total weight of the incremental samples making up each aggregate sample shall be not less than 4 kg.
 - Sampled portion of up to 1 ton: minimum 1 aggregate sample
 - Sampled portion of more than 1 and up to 10 tons: minimum 2 aggregate samples
 - Sampled portion of more than 10 and up to 40 tons: minimum 3 aggregate samples
 - Sampled portion of more than 40 tons: minimum 4 aggregate samples

Directive 76/371/EC



- **In relation to the control of undesirable substances or products likely to be distributed non-uniformly throughout the feedingstuffs (bulk lots)**
 - The number of incremental samples to be taken is determined by the total lot size, and the number of incremental samples per aggregate sample is obtained by dividing the total number of incremental samples by the required number of aggregate samples.
 - Each aggregate sample gives the final samples on reduction. Analysis of at least one final sample per aggregate sample is required. The weight of the final sample for analysis may not be less than 500 g.

CEN/ISO 6497:2004



- Very similar sampling procedure as provided in Commission Directive 76/371/EEC
- CEN specifies that the sampling procedure is applicable for lot sizes up to a maximum 500 tonnes for grains, seeds, pulses and pellets and 100 tonnes for meals and powders (including compound feedingstuffs)

CEN/ISO 6497:2004



- Number of incremental samples (applicable to grains, seeds, pulses, pellets, meals and powders):
 - **Consignments < 2.5 tonnes: 7 incremental samples**
 - **Consignments > 2.5 tonnes: square root of 20 times the number of tonnes up to a maximum of 100 incremental samples**

CEN/ISO 6497:2004



- Aggregate sample size, reduced sample size and laboratory sample size (applicable to grains, seeds, pulses, pellets, meals and powders):

Size of lot tonnes	Minimum mass of bulk sample kg	Minimum mass of reduced sample ^a kg	Minimum mass of laboratory sample kg
1	4	2	0,5
over 1 to 5	8	2	0,5
over 5 to 50	16	2	0,5
over 50 to 100	32	2	0,5
over 100 to 500	64	2	0,5

^a This is the minimum quantity required for up to four laboratory samples (see note to 2.6).

CEN/ISO 6497:2004



- **In relation to the control of undesirable substances or products likely to be distributed non-uniformly throughout the feedingstuffs (bulk lots): see 76/371**

Commission Regulation 401/2006



- Lot: an identifiable quantity of food delivered at one time and determined by the official to have common characteristics
- Sublot: designated part of a large lot in order to apply the sampling method on that designated part. Each sublot must be physically separate and identifiable

Commission Regulation 401/2006



- On the condition that the subplot can be separated physically, each lot of more than 50 tonnes shall be subdivided into sublots according to following table:

Commodity	Lot weight (tonne)	Weight or number of sublots	N° incremental samples	Aggregate sample Weight (kg)
Cereals and cereal products	≥ 1500	500 tonnes	100	10
	>300 and <1500	3 sublots	100	10
	≥ 50 and ≤ 300	100 tonnes	100	10
	< 50	--	10-100 *	1-10

Commission Regulation 401/2006



- Incremental sample: 100 g
- Each (sub)lot shall be separately sampled
- Number of incremental samples for
 - consignments > 50 tonnes: 100
 - consignments < 50 tonnes 3-100 – see table next slide
- Weight of the aggregate sample
 - consignments > 50 tonnes: 10 kg
 - consignments < 50 tonnes: 1-10 kg (at least 1 kg)

Commission Regulation 401/2006



- Number of incremental samples for lots < 50 tonnes

Lot weight (tonnes)	No of incremental samples	Aggregate sample weight (kg)
≤ 0.05	3	1
$> 0.05 - \leq 0.5$	5	1
$> 0.5 - \leq 1$	10	1
$> 1 - \leq 3$	20	2
$> 3 - \leq 10$	40	4
$> 10 - \leq 20$	60	6
$> 20 - \leq 50$	100	10

Commission Regulation 401/2006



- If it is not possible to carry out the method of sampling because of commercial consequences resulting from damage to the lot (because of packaging forms, means of transport, etc ...) an alternative method of sampling may be applied provided that it is as representative as possible and is fully described and documented.
- An alternative method of sampling may also be applied in cases where it is practically impossible to apply the sampling method (e.g. large static lots) → guidance document

Sampling of large lots sampling for screening



- For sampling of large lots of cereals and cereal products (> 500 tonnes) it is proposed that an aggregate sample is taken consisting of 100 incremental samples of 100 gram + a number of incremental samples equal to the square root of the number of tonnes.
- Example: consignment of 10.000 tonnes: 100 incremental samples + 100 incremental samples ($\sqrt{10.000}$) = 200 incremental samples of 100 grams resulting in an aggregate sample of 20 kg.

Sampling of large lots sampling for screening



- For lots < 500 tonnes, a screening approach could be followed for the screening, whereby a sample consists of 10 incremental samples of 100 grams resulting in an aggregate sample of 1 kg.

Template for reporting results



- Excell file
- detailed description of the sampled product.
- origin of the lot (country, region)
- year of production
- if available, information on the crop grown/ cultivation practices on the field preceding the crop sampled
- size of the lot sampled
- short description of sampling procedure
- stage of sampling (storage, feed mill, ...)

Template for reporting results



- purpose of sampling (auto-control, official control,)
- method of analysis used
- analytical result corrected for recovery
- analytical results to be reported relative to a feedingstuff with a moisture content of 12%
- moisture content
- reporting of recovery rate
- measurement uncertainty