Annex 10.5 Nitrate Quantification: Provisions for the sampling method and processing of samples

To guarantee the comparability and accuracy of nitrate levels and/or analysis results in the vegetable produce of one harvest, the following requirements must be met for QS samples on basis of **Regulation (EU) No. 2023/915**.

Sampling in the field

Samples must be representative. Areas

- with different soil types
- which were subjected to different forms of cultivation
- containing different crop varieties
- harvested at different times

should be treated as separate plots or fields. Cultures harvested from narrow patches or protected areas should be taken from several beds and combined into one collective sample. Samples should be taken by following a "W", "X" or "Z"-shaped pattern in the field.

Product-specific information on the sample size and processing can be taken from Tables 1 and 2.

Sampling in the storage area

The sampling method applies to batches ≤ 25 tonnes.

Large batches (> 30 tonnes) should in principle be divided into sub-batches of 25 tonnes provided that sub-batches can be physically separated. As the weight of the batch is not always an exact multiple of 25 tonnes, the weight of the sub-batches may only exceed the nominal weight by a maximum of 25%, which means that the sub-batch may weigh between 15 and 30 tonnes. If the batch cannot be physically separated into sub-batches, the sample is taken from the batch.

Each batch whose conformity has to be checked has to be examined separately. In cases in which a sampling method of this kind would have unacceptable consequences for trade because the batch would get damaged (due to the packaging type, transport mode etc.), other sampling methods can be used provided that the sample is sufficiently representative of the sampled batch and the sampling method is described and documented in detail. The place from which a sample is removed from the batch should be selected at random.

Minimum number or weight of the individual samples or units

The following applies to the amount of the sample:

For field samples:

- The sample must comprise at least 10 plants/units and a weight of at least 1 kg must be reached
- For samples on trading level:
- The minimum number of incremental samples respectively units differs depending on the weight of the respective lot wherein a sample weight of at least 1 kg must be reached

Weight of lot (kg)	Minimum number of incremental samples to be taken
< 50	3
50 to 500	5
> 500	10

Use of individual samples after submission

Only fresh sample material should be used to determine the nitrate level. The deep freezing of sample material is not permitted. The processing/extraction of the sample must be done no later than 24 hours after the sample was taken. Earth, severely soiled and other inedible outer, severely damaged leaves and plant parts should be removed from the individual samples. Lettuce stalks should be left in the product but the part on the outside should be cut off flush with the outermost leaf. It is not permitted to wash the samples. Earth, for example, should be removed with a dry brush. Several product-specific measures are listed in Table 2.

Compiling a collective sample - homogenising

To compile a collective sample, the entire sample quantity has to be homogenised. It is not permitted to use only individual segments of the individual samples, but homogenisation can be facilitated by lightly crushing the individual samples in advance. With large sample volumes, several cycles are possible depending on the technical equipment, provided that the slurries can be well combined subsequently. Proof must be provided that the method used results in complete homogenisation.

One or more analysis and reserve samples should be drawn from the homogenised collective sample. The reserve samples should be frozen in such a way that the level of the nitrate quantity is not impaired.

Extraction and analysis methods

Extraction should be done with hot water (80° C). Extraction with cold water or methanol/water (30/70) is not permitted. The analysis must be made immediately after extraction, i.e. within a period of two hours. In rare circumstances, waiting times of up to half a day at the most are possible for organisational reasons provided that the sample is kept in a cool, dark place. The nitrate must be quantified in compliance with the official method ASU L26.00-1 (equivalent to EN 12014-2) by means of HPLC /IC.

Table 1: Lettuces average edible plant parts

A) Open grown lettuce							
Lettuce Variety	**Plant weight**	**Preparation for marketing**		**Kitchen waste**		**Edible portion**	
	Example	**Percent waste**	**Selling weight**	**Percent waste**	**Example**	**Percent**	**Example**
Batavia with outer leaves	**600 g**	20 %	480 g	20 %	120 g	60 %	360 g
Oakleaf with outer leaves	**600 g**	20 %	480 g	20 %	120 g	60 %	360 g
Iceberg packed in film	**1.200 g**	35 %	780 g	5 %	60 g	60 %	720 g
Iceberg with outer leaves	**1.200 g**	20 %	960 g	20 %	240 g	60 %	720 g
Endive with outer leaves	**1.200 g**	20 %	960 g	20 %	240 g	60 %	720 g
Curly endive with outer leaves	**600 g**	20 %	480 g	20 %	120 g	60 %	360 g
Garden lettuce with outer leaves	**600 g**	20 %	480 g	20 %	120 g	60 %	360 g
Garden lettuce hearts	**600 g**	35 %	390 g	5 %	30 g	60 %	360 g
Lollo with outer leaves	**500 g**	20 %	400 g	20 %	100 g	60 %	300 g
Radicchio hearts	**600 g**	35 %	390 g	5 %	30 g	60 %	360 g

A) Open grown lettuce							
Romana mini hearts	**400 g**	35 %	260 g	5 %	20 g	60 %	240 g
Romana large hearts	**800 g**	35 %	520 g	5 %	40 g	60 %	480 g
Romana large with outer leaves	**800 g**	20 %	640 g	20 %	160 g	60 %	480 g
Salanova	**400 g**	20 %	320 g	20 %	80 g	60 %	240 g
B) Greenhouse lettuce:							
With roughly 25 % waste, the edible portion lies at around 75% here							

Table 2: Nitrate Quantification: Product-specific provisions for the sample size and processing of relevant vegetable varieties (+AVV-DÜP)

Product	Minimum size of the laboratory sample	Handling and subsequent cleaning after receipt of samples in all stages	Preparation of the analysis sample (collective sample)
Spinach (250114) and lamb's lettuce (250102)	1 kg	Remove earth (without water), dirty, inedible and damaged plant parts; clean root if necessary	Entire sample material is homogenised together
Lettuce[1]	1 kg	Remove earth (without water), outer dirty, inedible and damaged plant parts, then cut off the stalk flush with the outermost leaf	Entire sample material is homogenised together, several cycles possible with large volumes
Beetroot (250409)	1 kg	Cut off the greens flush with the beet, remove earth	Entire sample material is homogenised together, several cycles possible with large volumes
Rocket (250142)	1 kg	Remove dirty, inedible and damaged plant parts	Entire sample material is homogenised together

[1] Lactuca sativa L. (incl. lettuce hearts) (250126, 250101, 250222, QS600016, QS600015)