

# **GMP+ Feed Certification scheme**

**BA**

*Module: Feed Safety Assurance*

## **GMP+ BA13** Minimum Requirements for Sampling

**13**

Version: 1<sup>st</sup> of January 2015 (*correction 01-04-2016*)

**EN**

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## History of the document

Revision no. - Date of approval	Amendment	Concerns	Final implementation date
0.0 - 09-2010	Transfer of the document from PDV to GMP+ International and some restructuring.	Entire document	01-01-2011
0.1 / 09-2011	New introduction	Section 1	01-01-2012
0.2 / 11-2012	A footnote with a general reminder about the storage period of retained samples is added.  New introduction and modified text regarding the Feed Certification Scheme	Section 4  Entire document	01-03-2013
0.3 / 06-2014	Editorial changes: All editorial changes are listed in a <a href="#">factsheet</a>	Entire Document	01-01-2015
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# 1 Introduction

## 1.1 General

The GMP+ Feed Certification scheme was initiated and developed in 1992 by the Dutch feed industry in response to various more or less serious incidents involving contamination in feed materials. Although it started as a national scheme, it has developed to become an international scheme that is managed by GMP+ International in collaboration with various international stakeholders.

Even though the GMP+ Feed Certification scheme originated from a feed safety perspective, in 2013 the first feed responsibility standard has been published. For this purpose, two modules are created: GMP+ Feed Safety Assurance (focussed on feed safety) and GMP+ Feed Responsibility Assurance (focussed on responsible feed).

GMP+ Feed Safety Assurance is a complete module with standards for the assurance of feed safety in all the links of the feed chain. Demonstrable assurance of feed safety is a 'license to sell' in many countries and markets and participation in the GMP+ FSA module can facilitate this excellently. Based on needs in practice, multiple components have been integrated into the GMP+ FSA standards, such as requirements for a feed safety management system, for application of HACCP principles, for traceability, monitoring, prerequisites programmes, chain approach and the Early Warning System.

With the development of the GMP+ Feed Responsibility Assurance module, GMP+ International is responding to requests from GMP+ participants. The animal feed sector is confronted with requests to operate more responsible. This includes, for example, the sourcing of soy and fishmeal which are produced and traded with respect for humans, animals and the environment. In order to demonstrate responsible production and trade, a company can get certified for the GMP+ Feed Responsibility Assurance. GMP+ International facilitates via independent certification the demands from the market.

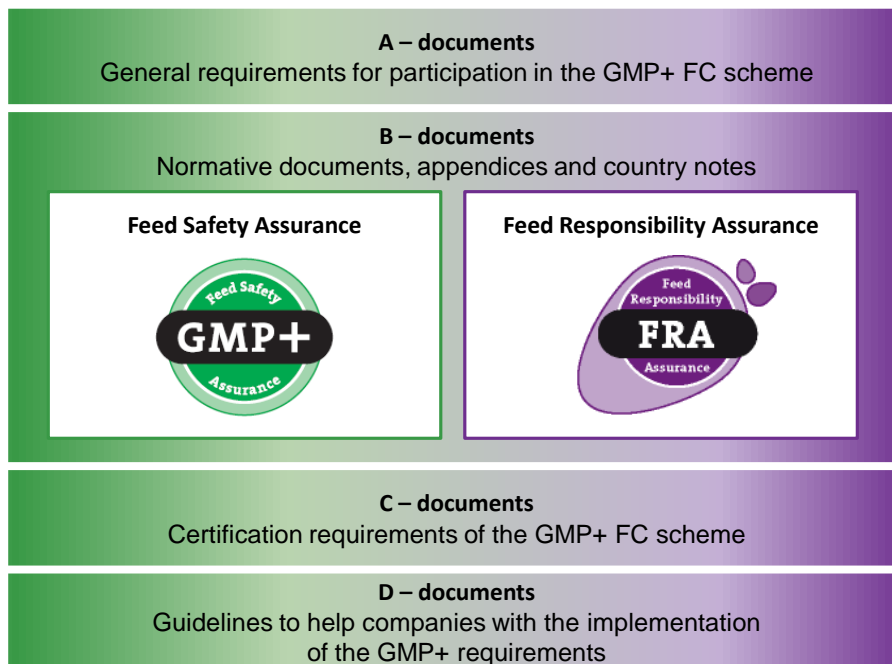
Together with the GMP+ partners, GMP+ International transparently lays down clear requirements in the Feed Certification scheme. Certification bodies are able to carry out GMP+ certification independently.

GMP+ International supports the GMP+ participants with useful and practical information by way of a number of guidance documents, databases, newsletters, Q&A lists and seminars.

## 1.2 Structure of the GMP+ Feed Certification scheme

The documents within the GMP+ Feed Certification scheme are subdivided into a number of series. The next page shows a schematic representation of the content of the GMP+ Feed Certification scheme:

### GMP+ Feed Certification scheme



All these documents are available via the website of GMP+ International ([www.gmpplus.org](http://www.gmpplus.org)).

This document is referred to as GMP+ BA13 *Minimum Requirements for Sampling* and is part of the GMP+ FSA module.

## 2 Basic principles

In the sampling protocols no distinction is made between characteristics which homogenous and those which are not homogenous within a batch (for example undesirable substances such as mycotoxins and toxic seeds). In practice, a number of examples follow, it makes no difference.

*Undesirable substances in feeds:*

Cereal grains: Various mycotoxins can be present in grains. These appear to a greater or lesser extent depending on the growing season. During harvesting the grains are loaded from the combine into a tipper and brought to a compound feed company or a collection point. At the compound feed company it is possible that the grain is taken in directly via the dumping pit. The undesirable substances are mixed homogeneously through the batch by the dumping of the combine into the tipper and the unloading into the dumping pit.

If the grain is brought to another collection point then the grain is sampled, dumped and reloaded and taken to a storage location or compound feed company. The analysis for undesirable substances should be done from the tipper as the undesirable substances will be more evenly distributed through the batch due to mixing. On intake into the production site there will be a homogeneously-mixed undesirable substance mixed through the batch.

In the event of the transport of grains over water a great number of batches are brought together. As the original batches are mixed together to a great extent it may be assumed that the undesirable substances are distributed homogeneously across the batch. In the event of laying-up at a storage and transshipment depot the batch will be mixed further so that in the event of transport to the compound feed factory there will be a homogenous batch.

Aflatoxin: With respect to Aflatoxin B<sub>1</sub> it is known that it can be highly ~~homogeneously~~ ~~heterogeneous~~ distributed across the batch (Park and Poland, 1989). It is indicated here that if the product is made smaller by grinding (for example into flour), the heterogeneity is lessened. In the GMP+ FSA module products are critically sampled and analysed for Aflatoxin in accordance with an established schedule. This is often in accordance with the Gafta contract. The GAFTA Sampling Rules state that a collective sample of at least 20 kg must be taken from the batch per 500 tons of product. The random samples may amount to a maximum of 1 kg. ISO 6497 states that from 100 to 500 tons the collective sample must be at least 64 kg. It appears that the GAFTA sampling is compliant in spite of deviations from ISO and EU (indicates 40 subsamples for 80 tons of product). FOSFA contracts keep to ISO 5555 and ISO 542.

On the basis of the above it is assumed that the sampling method is used for GAFTA. If the sampling with subsamples with respect to GAFTA is extrapolated to vehicles for example of a maximum of 50 tons then 2 random samples per vehicle will be enough. The collective sample will amount to 2 kg. With respect to bagged goods, one batch of 50 tons in 25 kg bags would mean that 2 of the 2000 bags must be sampled.

The numbers of random samples indicated in the protocols and the quantity of the collection sample are minimum numbers and quantities.

Dioxin in steamed potato peelings: Within the framework of the former Dutch legislation with respect to minerals supply records (MINAS) one subsample was enough for steamed potato peelings. In samples which were examined within the framework of the contamination with dioxin in the Netherlands in November 2004 it was assumed that they contained dioxin and this was also found. It was shown that in this case one random sample was sufficient.

*Undesirable substances in compound feeds:*

In the compound feed industry the end feeds are made from various raw materials. The various feed materials, feed additives and premixtures are weighed in the factory. The feed materials from silos are usually ground. The components are mixed in the mixer. Due to the grinding and mixing any undesirable substances which may be present will be distributed homogeneously throughout the batch of compound feed. The empiric coefficient of variation amounts to an average of 6%.

### 3 Requirements for samplers

The minimum requirements for samplers are subdivided into working conditions and training / experience.

#### 3.1 Working conditions

The sampler should have an independent position<sup>1</sup> with respect to the activities relating to the production and trading of feed additives, feed materials, premixtures and compound feeds in the company. This should be expressed in the job description and the organisational chart for the company. The sampler will conform with the strict implementation of the GMP+ sampling protocols in accordance with this document.

The sampler will have free access to all buildings and departments if this is necessary for sampling. This should be described in the job description.

#### 3.2 Training and experience

The sampler:

- a. will be familiar with the products to be sampled.
- b. will be able to make proper use of the required sample materials.
- c. will be familiar with the protocols and applies them.
- d. will be assessed each year by other persons in the organisation with respect to the correct use of the GMP+ sampling protocols. A plan will be available for this purpose
- e. He will demonstrate by way of the taking of a training course or equivalent that he has knowledge of the sampling protocols which apply to him or her. He will have regular refresher training in sampling protocols if possible.

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<sup>1</sup> By independent is meant that he or she may not be forced by their immediate supervisor or management not to take samples or to take them in a different way. This should be demonstrable. This can be by showing the position of the sampler in the organisational chart of the company and by, for example, an additional (signed) statement from management. It is therefore possible for production workers also to fulfil the role of sampler.



## 4 Storage duration and condition

The following requirements with respect to storage duration and conditions apply to the samples taken.

Product	Storage duration <sup>2</sup>	Storage conditions
Compound feeds (including milk replacer)	3-6 months	Cool, dry and dark
Premixtures / processing aids	1 year or longer if there is still product in storage	Cool, dry and dark
feed additives	6 months	Cool, dry and dark
feed materials (dry, artificially dried, naturally dried)	6 to 12 months depending on the moment of delivery	Sample pot, cool, dry and dark
Fresh feed materials	Max 1 month, storage life often only a few days and will be fed as soon as possible	In air-tight sample bag in freezer
Preserved feed materials (products which are acidified or which have been subjected to natural acidification for the purpose of extending the shelf life of these products)	As long as the product is provided as feed up to a maximum of 2 years.	Preserved product (for example wrapped grass hay bale or green maize silage) is therefore "packaged", that it is available during the storage period for analysis.
Liquid and wet feed materials which are sensitive to decay due to their high moisture content	3 months or as long as it may be assumed that the product will be provided as feed.	In air-tight deepfreeze sample pot
Liquid and wet feed materials which are not sensitive to decay	3 months or as long as it may be assumed that the product will be provided as feed.	Sample pot, cool, dry and dark

<sup>2</sup> Note: Retained samples must at least be kept available for a period that is corresponding to the use of the feed, placed on the market.

## 5 Literature

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## **ANNEX 1: Sampling protocol: dry and wet feed materials delivery by inland waterways vessel / coaster<sup>3</sup>**

### **Purpose**

The obtaining of as representative a sample as possible from the batch of dry or wet feed materials in the event of supply by inland waterway vessel or coaster.

### **Implementation**

#### **a. Sample material**

Use can be made when taking a sample of a scoop, a hand scoop or sample drill consisting of one or more compartments. The sample drill must be adjusted to the depth of the product in the hold. In addition, use can be made of automatic sampling equipment. Automatic sampling equipment must be able to take samples over the whole production flow or to the extent that this is possible. The sampling equipment must be able to be adjusted to the size of the subsamples and the frequency of sampling.

In the event of manual sampling the subsamples can be collected in a plastic bucket or an equivalent bin. All the parts of the sampling equipment and the storage facilities for the collective sample, sample tools and sample bags or pots must be clean, dry and free of odours foreign to the product.

The sampling equipment must be easily accessible for inspection, cleaning, maintenance, repair and for sample verification.

#### **b. Sampling location**

In the hold of the vessel before the vessel is unloaded if the sample drill is used for sampling. The whole load must be accessible. If it is not possible to sample the hold then the flow must be sampled during unloading. If use is made of automatic sampling equipment then the sample must be taken as close as possible to the point where the transfer of ownership of the product takes place (just after intake). Samples must be taken such that contamination of the samples, equipment or containers in which the samples are stored with, for example rain or dust, is prevented.

#### **c. Sampling**

The sample is taken by collecting a number of sub-samples and making a collective sample from these and then preparing a final sample.

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<sup>3</sup> Companies may, if desired, make use of demonstrably established and agreed use of sampling in the port which takes place on the basis of Fosfa or Gafta and make use of simpler sampling at their own company.

The number of sub-samples depends on the quantity of product delivered, see the table.

Quantity in tons	Number of sub-samples	Minimum quantity of collective sample	Final sample
up to 5,000 tons: for each 500 tons	minimum 5	for each 500 tons minimum 1.0 kg	300 g
5,000 – 10,000 tons for each 1000 tons	minimum 5	for each 1000 tons minimum 1.0 kg	300 g
More than 10,000 tons for each 5,000 tons	minimum 5	for each 5000 tons minimum 1.0 kg	300 g

#### *Sub-samples*

The individual sub-samples should be of the same size. If the sample is taken during unloading of the vessel then the sub-samples must be spread over the whole time that the vessel is being unloaded. If the samples are taken using the sample drill then the sub-samples should be spread across the whole load.

If use is made of automatic sampling equipment then the samples must be taken over as wide a cross-section as possible of the product flow such that nearly every part of the batch has a chance of flowing into the sampling machine.

The sub-samples can be taken by allowing a small part of the batch to flow continuously into the sampling equipment or by taking a series of sub-samples at a determined interval. If the sub-samples are taken at intervals then samples must be taken throughout the whole time that the batch is flowing past the sampling equipment.

In the event of manual sampling the sub-samples which are taken should be collected on a clean, flat base where contamination by the environment is prevented or collected in a collection bin (such as a bucket).

#### *Collective sample*

The sub-samples which are taken are collected into a collection receptacle (a bucket for example). The product which is present is well mixed to produce a collective sample.

#### *Final sample*

A final sample is made from the collective sample. This refers to the retained samples. If inspection of the batch is desired then two or more final samples should be taken from the collective sample.

#### d. Sample sealing and storage

The sample should be labelled such that it can easily be identified. This means that at least the following records must be made, if applicable, on the sample using a clearly linked form of registration: date of sampling, product identification, batch identification, sampler, supplier, production unit where the sample was taken. The sample must be kept in such a way that damage to and deterioration of the sample is avoided. The sealing should be such that opening the sample inevitably leads to an irrevocable break in the seal on the sample.

## ANNEX 2: Sampling protocol: feed materials, compound feeds, premixtures and feed additives in receptacles

### Purpose

The obtaining of the most representative sample possible from the batch of feed materials, compound feeds, premixtures and feed additives in receptacles such as bags, drums, big-bags, etc.

### Implementation

#### a. Sample material

Use can be made when taking a sample of a scoop, a hand scoop or sample drill. The samples can be collected in a plastic bucket or a similar receptacle. The sampling equipment and the sample bags or pots must be clean, dry and free of odours foreign to the product.

#### b. Sampling location

Contamination from the environment is prevented by using a clean, dry location.

#### c. Sampling

The sample is taken by collecting a number of sub-samples and making a collective sample from these and then preparing a final sample. The number of units (for example bags or big bags) that must be sampled depends on the size of the batch. Per unit, in the case of sacks and big bags, should if possible be sampled at the top of the bag, big bag etc., in the middle and at the bottom. If this is not possible then open the unit at the top and take a sample from the top. .

Product	Quantity	Number of sub-samples	Minimum quantity of collective sample	Minimum quantity of final sample
Feed materials	up to 50 tons (for example up to 2000 units of 25 kg)	2	2 kg	300 g
Feed materials	more than 50 tons (for example more than 2000 units of 25 kg)	1 per 25 tons	1 kg per sub-sample	300 g
Compound feeds	All quantities	1	300 g	300 g
Premixtures	All quantities	1	100 g	100 g
Feed additives	Up to 1000 kg	2	250 g	100 g
Feed additives	From 1000 kg up to 50 tons (for example up to 2000 units of 25 kg)	2	1 kg.	100 g
Feed additives	more than 50 tons (for example more than 2000 units of 25 kg)	1 per 25 tons	500 g per sub-sample	100 g

### *Sub-samples*

The individual sub-samples should be of the same size.

### *Collective sample*

The sub-samples which are taken are collected into a collection receptacle (a bucket for example). The product which is present is well mixed to produce a collective sample.

### *Final sample*

A final sample is made from the collective sample. This refers to the retained samples. If inspection of the batch is desired then two or more final samples should be taken from the collective sample.

#### d. Sample sealing and storage

The sample should be labelled such that it can easily be identified. This means that at least the following records must be made, if applicable, on the sample using a clearly linked form of registration: date of sampling, product identification, batch identification, sampler, supplier, production unit where the sample was taken. The sample must be kept in such a way that damage to and deterioration of the sample is avoided. The sealing should be such that opening the sample inevitably leads to an irrevocable break in the seal on the sample.

## **ANNEX 3: Sampling protocol: compound feeds, dry feed materials, premixtures and feed additives in bulk per axle or during bagging**

### **Purpose**

The obtaining of the most representative sample possible from the batch of compound feeds, dry feed materials, premixtures or feed additives in the event of transport in bulk per axle or during bagging.

### **Implementation**

#### **a. Sample material**

Use can be made when taking a sample of a scoop, a hand scoop or sample drill consisting of one or more compartments.. The sample drill must be adjusted to the depth of the product in the vehicle. In addition, use can be made of automatic sampling equipment. Automatic sampling equipment must be able to take samples over the whole production flow or to the extent that this is possible. The sampling equipment must be able to be adjusted to the size of the subsamples and the frequency of sampling.

In the event of manual sampling the subsamples can be collected in a plastic bucket or an equivalent bin.

All the parts of the sampling equipment and the storage facilities for the collective sample, sample tools and sample bags or pots must be clean, dry and free of odours foreign to the product.

The sampling equipment must be easily accessible for inspection, cleaning, maintenance and for sample verification..

#### **b. Sampling location**

Preferably during loading or unloading of the vehicle. If this is not possible then from the stationary vehicle auto where the whole load must be accessible. Sampling during the production process is also possible. It is important then that after sampling there are no more additives to or treatments of the product. If the product is bagged then a sample can be taken during bagging. If use is made of automatic sampling equipment then the sample must be taken just after intake or as close as possible during loading. In the event of sampling of compound feeds and premixtures the samples can be taken as closely as possible beyond the mixer. Samples must be taken such that contamination of the samples, equipment or containers in which the samples are stored with, for example rain or dust, is prevented. If the delivery consists of two parts (vehicle and trailer) then they can both be considered to be one batch.

#### **c. Sampling**

The sample is taken by collecting a number of sub-samples and making a collective sample from these and then preparing a final sample.

The number of sub-samples depends on the quantity of product supplied, produced or to be delivered, see the table.

Product	Quantity in tons	Number of sub-samples	Minimum quantity of collective sample	Final sample
Feed materials	up to 50 tons	2	2 kg	300 g
Compound feeds	up to 50 tons	1	300 g	300 g
Premixtures	up to 50 tons	1	100 g	100 g
Feed additives	up to 50 tons	2	100 g	100 g

#### *Sub-samples*

The individual sub-samples should be of the same size. If the sample is taken during loading or unloading of the vehicle or during the production process then the sub-samples must be spread over the whole time that the vehicle is being loaded or unloaded or the production time. If the samples are taken using the sample drill then the sub-samples should be spread across the whole batch using a sample drill. If applicable the sub-samples must be taken from multiple compartments or hatches.

If use is made of automatic sampling equipment then the samples must be taken over as wide a cross-section as possible of the product flow such that nearly every part of the batch has a chance of flowing into the sampling machine.

The sub-samples can be taken by allowing a small part of the batch to flow continuously into the sampling equipment or by taking a series of sub-samples at a determined interval. If the sub-samples are taken at intervals then samples must be taken throughout the whole time that the batch is flowing past the sampling equipment.

#### *Collective sample*

The sub-samples which are taken are collected into a collection receptacle (a bucket for example). The product which is present is well mixed to produce a collective sample.

#### *Final sample*

A final sample is made from the collective sample. This refers to the retained samples. If inspection of the batch is desired then two or more final samples should be taken.

#### d. Sample sealing and storage

The sample should be labelled such that it can easily be identified. This means that at least the following records must be made, if applicable, on the sample using a clearly linked form of registration: date of sampling, product identification, batch identification, sampler, supplier, production unit where the sample was taken. The sample must be kept in such a way that damage to and deterioration of the sample is avoided. The sealing should be such that opening the sample inevitably leads to an irrevocable break in the seal on the sample.



## **ANNEX 4: Sampling protocol: liquid feed materials and wet feeds in bulk, transport per axle**

### **Purpose**

The obtaining of as representative a sample as possible from the batch of liquid feed materials and wet feeds (liquid and solid) in bulk in the event of transport per axle.

### **Implementation**

#### **a. Sample material**

Use should be made, when taking a liquid sample, of the vehicle drain cock. Use can be made when taking a sample from a solid product of a scoop, a hand scoop or sample drill consisting of one or more compartments. When using a sample drill this must be adjusted to the depth of the product in the vehicle or after unloading. The samples can be collected in a plastic bucket or an equivalent receptacle. A mixing spoon is required for mixing liquid product. The sampling equipment and the sample bags or pots must be clean, dry and free of odours foreign to the product.

#### **b. Sampling location**

The following items for attention apply during the loading of the truck:

1. there is no residual load in the truck
2. after loading the product will be quickly delivered (meaning within a few hours) to the customer
3. no additional loading will take place after the sampling
4. for products which are collapsing or where lighter elements are drifting up it is desirable prior to and during the loading to stir it to obtain a good representative sample.

Solid products can be sampled after unloading. Liquid products can also be sampled during unloading.

#### **d. Sampling**

The sample is taken by collecting a number of sub-samples and making a collective sample from these and then preparing a final sample.. The number of sub-samples depends on the quantity of product supplied or to be delivered, see the table.

Product <sup>4</sup>	Quantity in tons	Number of sub-samples	Minimum quantity of collective sample	Final sample
Liquid	up to 50 tons	min. 2	250 g	250 g
Solid	up to 50 tons	min. 2	500 g	500 g

#### *Sub-samples*

When taking a sub-sample via a drain cock it is important always to allow the old material to drain out (not to use it as a sub-sample). In addition, the diameter of the ball valve must be enough to prevent the sieving out of solids.

The individual sub-samples should be of the same size. If the sample is taken during loading or unloading of the vehicle then the sub-samples must be spread over the whole time that the vehicle is being loaded or unloaded. For solid products a sample should be taken across the batch.

This is done by taking sub-samples across the batch using a sampling drill or a scoop. The liquid samples which are taken are put in a sample pot or something like that and collected in a bucket or equivalent receptacle. The other sub-samples are also put in a bucket or equivalent receptacle. If inspection shows that the product is insufficiently homogenous then a single sub-sample (= collective sample) is sufficient.

#### *Collective sample*

The sub-samples which are taken are collected into a collection receptacle (a bucket for example). The product which is present is well mixed to produce a collective sample.

#### *Final sample*

A final sample is made from the collective sample. If inspection of the batch is desired then two or more final samples should be taken from the collective sample.

#### d. Sample sealing and storage

The sample should be labelled such that it can easily be identified. This means that at least the following records must be made, if applicable, on the sample using a clearly linked form of registration: date of sampling, product identification, batch identification, sampler, supplier, production unit where the sample was taken. The sample must be kept in such a way that damage to and deterioration of the sample is avoided. The sealing should be such that opening the sample inevitably leads to an irrevocable break in the seal on the sample.

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<sup>4</sup> In the event that the product is loaded from a large identified batch, day production or stock silo (more than 50 tons), from which in accordance with this procedure final samples have been taken, the final samples can be decreased, if by adding together these final samples, a sample of a minimum of 250 grams for liquid or of 500 grams for solid products is created.

## ANNEX 5: Sampling protocol: forage products

### Purpose

To obtain the best possible representative sample from the batches of forage products.

### Implementation

#### a. Sample material

Use can be made when taking a sample of the hands, a scoop, a hand scoop or sample drill consisting of one or more compartments. The sample drill must be adjusted to the depth of the product (for example in the silage or loading compartment). The samples can be collected in a plastic bucket or an equivalent receptacle. The sampling equipment and the sample bags or pots must be clean, dry and free of odours foreign to the product.

#### b. Sampling location

Preferably during loading or unloading of the vehicle. If this is not possible then from the stationary vehicle auto where the whole load must be accessible. If loading is done from a rick or silage then this is one unit.

#### c. Sampling

The sample is taken by collecting a number of sub-samples and making a collective sample from these and then preparing a final sample.. The number of sub-samples depends on the quantity of product supplied or to be delivered, see the table.

Quantity in tons per unit	Number of sub-samples	Minimum quantity of collective sample	Minimum quantity of final sample
up to 50 tons	Minimum 5	500 grams	250 grams
> 50 tons	Minimum 10	500 grams	250 grams

#### *Sub-samples*

The individual sub-samples should be of the same size. If the sample is taken during loading or unloading of the vehicle (for example feed potatoes) then the sub-samples must be spread over the whole time that the vehicle is being loaded or unloaded. If the samples are taken using the sample drill then the sub-samples should be spread across the whole batch using a sample drill if possible.

In the event of packs or bales then 5 units (bales or packs) should be sampled from the batch spread across the batch (if possible at the top, middle and bottom of the batch). If the batch can only be accessed from one side then the samples may be taken from that side.

*Collective sample / final sample*

The sub-samples which are taken are collected into a bucket or bag. The product which is present will if necessary be reduced and well stirred or mixed to produce a collective sample. This collective sample can also serve as a final sample.

d. Sample sealing and storage

The sample should be labelled such that it can easily be identified. This means that at least the following records must be made, if applicable, on the sample using a clearly linked form of registration: date of sampling, product identification, batch identification, sampler, supplier, production unit where the sample was taken. The sample must be kept in such a way that damage to and deterioration of the sample is avoided. The sealing should be such that opening the sample inevitably leads to an irrevocable break in the seal on the sample.

## ANNEX 6: Sampling protocol: products in tank storage and silos or sheds in the event of an emergency or an incident

### Purpose

To obtain the best possible representative sample from the batch in the event of an emergency or an incident during tank storage or during storage in silos or sheds.

### Implementation

#### a. Sample material

Use can be made when taking a sample of a scoop, a hand scoop or a sample drill. The sample drill must be adjusted to the depth of the product in the shed. The samples can be collected in a plastic bucket or an equivalent receptacle. The sampling equipment and the sample bags or pots must be clean, dry and free of odours foreign to the product.

#### b. Sampling location

During turning over from one silo to another or at the location where the batch is stored. If this is technically not possible then it must be established how this will be implemented.

#### c. Sampling

The sample is taken by collecting a number of sub-samples and making a collective sample from these and then preparing a final sample. The number of sub-samples depends on the quantity of product in storage. See the table.

Product	Form	Quantity in tons	Number of sub-samples	Minimum quantity of collective sample	Minimum quantity of final sample
Feed materials	Dry	up to 50 tons	2	2 kg	600 g
		from 50 to 500 tons	1 per 25 tons	1 kg per 25 tons 100 tons :4 kg 250 tons :10 kg etc. 500 tons: 20 kg	600 g
		the part of the batch in excess of 500 tons	1 per 50 tons	1 kg per sub-sample	600 g

Product	Form	Quantity in tons	Number of sub-samples	Minimum quantity of collective sample	Minimum quantity of final sample
Compound feeds	Dry	up to 50 tons	2	2 kg	600 g
		from 50 to 500 tons	1 per 25 tons	1 kg per 25 tons 100 tons:4 kg 250 tons:10 kg etc. 500 tons: 20 kg	600 g
		the part of the batch in excess of 500 tons	1 per 50 tons	1 kg per sub-sample	600 g
Premix-tures	Dry	up to 50 tons	2	2 kg	200 g
		from 50 to 500 tons	1 per 25 tons	1 kg per 25 tons 100 tons:4 kg 250 tons:10 kg etc. 500 tons: 20 kg	200 g
		the part of the batch in excess of 500 tons	1 per 50 tons	1 kg per sub-sample	200 g
Feed additives	Dry	up to 50 tons	2	2 kg	200 g
		from 50 to 500 tons	1 per 25 tons	1 kg per 25 tons 100 tons:4 kg 250 tons:10 kg etc. 500 tons: 20 kg	200 g
		the part of the batch in excess of 500 tons	1 per 50 tons	1 kg per sub-sample	200 g
Feed materials	Liquid	up to 50 tons	1	500 g	500 g
		Above 50 tons	1 per 50 tons	7 kg	600 g
Compound feeds	Liquid	up to 50 tons	1	500 g	500 g
		Above 50 tons	1 per 50 tons	7 kg	600 g
Premix-tures	Liquid	up to 50 tons	1	250 g	250 g
		Above 50 tons	1 per 50 tons	7 kg	200 g
Feed additives	Liquid	up to 50 tons	1	250 g	250 g
		Above 50 tons	1 per 50 tons	7 kg	200 g

### *Sub-samples*

The individual sub-samples should be of the same size. If the sample is taken during turning over from one silo to another silo then the sub-samples must be spread over the whole time of turning over. If the samples are taken using the sample drill then the sub-samples should be spread across the whole batch.

### *Collective sample*

The sub-samples which are taken are collected into a collection receptacle (a bucket for example). The product which is present is well mixed to produce a collective sample.

### *Final sample*

A final sample is made from the collective sample.

#### d. Sample sealing and storage

The sample should be labelled such that it can easily be identified. This means that at least the following records must be made, if applicable, on the sample using a clearly linked form of registration: date of sampling, product identification, batch identification, sampler, supplier, production unit where the sample was taken. The sample must be kept in such a way that damage to and deterioration of the sample is avoided. The sealing should be such that opening the sample inevitably leads to an irrevocable break in the seal on the sample.

## **ANNEX 7: Sampling protocol: samples for microbiological examination**

### **Purpose**

To obtain a sample where the microbiological condition of the product is not changed.

### **Implementation**

This sampling protocol may possibly be used in combination with other sampling protocols when sampling takes place for analysis of both microbiological and chemical characteristics.

#### **a. Sample material**

Use can be made when taking a sample of a scoop, a hand scoop or sample drill consisting of one or more compartments.. The sample drill must be adjusted to the depth of the product in the vehicle. The sample materials used are disinfected (with 95% alcohol or another bactericidal agent) or are sterile.

#### **b. Sampling location**

Depends on the purpose of the sampling.

The following should be taken into consideration in the sampling of the bacteriological status of delivered feeds: Preferably during loading or unloading of the vehicle. If this is not possible then from the stationary vehicle auto where the whole load must be accessible. If the product is bagged then a sample can be taken during bagging. Samples must be taken such that contamination, for example by rain or dust, of the samples or containers in which the samples are stored is prevented. If the delivery consists of two parts (vehicle and trailer) then they can both be considered to be one batch.

#### **c. Sampling**

Use sterile gloves, disinfect the hands. Do not cough, sneeze or talk during the sampling and, if necessary, take measures to avoid infection from clothing, hair, etc. Keep bags, pots and bottles, etc. open as short as possible and with the opening turned upwards at an angle of 45°. Do not touch the insides of bags, pots, covers and the sampling tools with the hands if the sample material could come in contact with it. Always hold scoops, etc., by the handles. Avoid sampling by pouring out. If this cannot be avoided then disinfect the edge over which the pouring will be done prior to use. Avoid contact with heat / sunlight / damp / equipment. The sample size amounts to at least 60 grams which is sufficient for a duplicate determination. This is also the final sample.



d. Sample sealing, storage and consignment

The sample should be labelled such that it can easily be identified. This means that at least the following records must be made, if applicable, on the sample using a clearly linked form of registration: date of sampling, product identification, batch identification, sampler, supplier, production unit where the sample was taken. The sample must be kept in such a way that damage to and deterioration of the sample is avoided. The sealing should be such that opening the sample inevitably leads to an irrevocable break in the seal on the sample.

Consignment of the sample should be done in a sterile bottle or bag. Deliver samples of wet by-products to the laboratory within 24 hours. Other samples must be sent within two working days.