



PRACTICAL SAMPLING GUIDANCE
for FOOD STANDARDS and
FEEDING STUFFS

Part 1: Overall Objectives of
Sampling

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1 Introduction

- 1.1 The enforcement of food and feedings stuffs law in the UK is primarily the responsibility of the 499 local authorities and more specifically, Trading Standards Officers (TSOs) and Environmental Health Officers (EHOs). To deliver a well-balanced enforcement service and effectively protect consumers, local authorities need to have effective sampling policies, procedures and programmes in place.
- 1.2 The guidance is intended to promote effective and efficient food standards and feeding stuffs sampling by setting out some general guidance. The guidance does not cover microbiological sampling which is covered in previous guidance issued by LACORS in January 2002.
- 1.3 The aim of the guidance is to help provide direction to food authorities on the approach to sampling so that sampling makes an **effective** contribution to food law enforcement. It also assists food authorities in their work to protect the consumer by promoting good practice and encouraging the use of available resources in the most **efficient** way. It is intended as a broad guide to provide advice and support to those working on food and feeding stuffs enforcement. The guide is intended to facilitate sampling activity and it is not intended to prevent personal initiative or local flexibility on the part of individual enforcement officers or food authorities to take account of local circumstances.

2 Requirements for a sampling policy and programme

- 2.1 The draft revised Code of Practice issued under Section 40 of the Food Safety Act 1990 states in section 6.1.1 that effective routine sampling is an essential element in delivering a well balanced enforcement service and should therefore feature in the enforcement activity of all Food Authorities. Both the Food Standards Agency's "Code of Practice" and "Framework Agreement on Local Authority Food Law Enforcement" require that food authorities, including Port Health Authorities, should have a local sampling **policy** and **programme**. The Framework

Agreement is also intended to encourage food authorities to take part in centrally co-ordinated sampling programmes.

3 Objectives of food sampling

- 3.1 The main objectives of food sampling should be borne in mind when setting up sampling programmes, and these objectives may help to formulate priorities for sampling activity.

Objective 1: Protecting public health

- 3.2 The most important objective of food sampling is to protect public health. A significant proportion of sampling activity undertaken will, in some way, have a bearing on this wide-reaching objective. Specifically, sampling to detect naturally occurring toxins, contaminants, use of unsuitable ingredients, excessive addition of additives and failure to declare the presence of ingredients to which a consumer may be allergic will all contribute to this objective.

Objective 2: Detecting fraudulent activities

- 3.3 Consumers can sometimes end up not getting what they are paying for as a direct result of deliberate activity to defraud. One area which is becoming increasingly important to consumers is comprehensive and accurate labelling. For many activities, sampling and analysis will be the only way in which fraud or mislabelling can be detected; this is particularly true of imported food and feed sampling where inspection of the manufacturing process is not an option.

Objective 3: Giving customers sufficient information to make informed choices

- 3.4 Consumers are looking increasingly to product labelling to help them make informed choices about what products to buy. Such labelling information ranges from details that may provide guidance on the

quality of the food (e.g. the proportion of key ingredients) to information on the presence or otherwise of substances that a consumer may wish to avoid, for ethical or health reasons for instance. Sampling is a vital tool to help to check the veracity and accuracy of this labelling information.

Objective 4: Ensuring that food standards are maintained

- 3.5 Sampling is an essential tool to check whether foods meet the various statutory or customary compositional standards, the absence of which would be likely to result in debasement of these foods.

Objective 5: Informing the enforcement approach

- 3.6 Sampling is a key element of enforcement action. It can help inform any inspection activities either as part of, or associated with, visits to establishments. It can also identify food or feed sectors or products where enforcement attention is required.

Sampling is also of use during the investigation of complaints about food, for example follow-up sampling to establish if the cause of the complaint was an isolated incident.

Objective 6: Providing product quality advice to the producer

- 3.7 Notifying food or feed producers or retailers of sampling results could highlight issues that they were not aware of, thus allowing them to take prompt action. Similarly, enforcement sampling alerts industry that products are being monitored for the purpose of consumer protection and legal compliance.

Objective 7: Promoting fair trade and deterring bad practice

- 3.8 Legitimate businesses need assurance they will not be undermined by competitors who cut corners or commit fraud. Businesses and consumers alike need to know where they stand. It is, therefore,

important that food and feed law is effective and is enforced efficiently and consistently. Fair and effective enforcement helps honest and diligent food and feed businesses and is supported by industry as a whole.

4 A planned approach to food and feeding stuffs sampling

- 4.1 Food authorities should have in place a local sampling policy and programme and a food authority can plan for the majority of sampling that it carries out as part of its sampling programme. This planned sampling should take into account local concerns as well as wider issues and can generally be set some time in advance.
- 4.2 Although the main driver for any sampling programme must be risk based (see Section 5), some food authorities have found it useful to seek the opinion of and involve local businesses and consumers through food panels or food forums. This can add value to sampling activities and raise interest in results and programmes. Officers may wish to consider whether the risk based sampling programmes that they draw up could be usefully supplemented in this way to take on board issues of local concern and to raise the local profile of any sampling programme. Ways of disseminating information gathered as part of any sampling programme should also be considered. You may be able to involve your Members in formulating your programme and promoting the findings from your surveillance activity.
- 4.3 Sampling is a vital contribution to local enforcement and you may want to think about how you can liaise with local Magistrates to promote awareness of your sampling work.
- 4.4 Your planned sampling programme and your planned inspection programme for the year should be considered together to ensure, where appropriate, that sampling and inspection programmes can be effectively integrated. You will want to sample more frequently at high risk premises than at others, but as well as the risk associated with the premises, you will also want to take into consideration high risk products which may be on sale in otherwise lower risk premises.

What to sample

Assess the wider requirements

- You may have a good idea of what you want to include in your sampling programme, but are you choosing the right things to focus on? A check with your Food Liaison Group, LACORS (<http://www.lacors.gov.uk>) and your Public Analyst or Agricultural Analyst to see what recent surveys have been carried out or what may be planned to help you avoid foods or feeds that are already being looked at on a wider basis. Work being done nationally through the LACORS/Food Standards Agency Food Standards Co-ordinated Working Group could help you think about what to include in your programme and Food Standards Agency Surveys can also indicate areas of concerns and more information can be found at: <http://www.food.gov.uk/science/surveillance>. The table on pages 18 and 19 give some examples of food commodities and contaminants controlled by the Food Contaminants Regulations 2003
- Surveys can often provide a cost-effective way for local authorities to undertake sampling. For instance, a number of specific premises or types of product could be targeted and samples taken on a single day. Such planned arrangements might also help maximise laboratory efficiency.
- Imported food makes up 50 per cent of the food consumed in the UK but, unlike UK produce, enforcement officers are not able to visit manufacturing and production premises to ensure compliance with food safety and food standards regulations. Sampling then becomes a key mechanism to ensure the safety and quality of food and feed entering the UK from other countries.

Think about local issues

- Again, your Public Analyst or Agricultural Analyst will be able to advise you of emerging local concerns and there are real benefits in discussing your proposed sampling programme with your Analyst. This may be an appropriate opportunity to review any Service Level Agreement that you may have with your Analyst to ensure that it is appropriate for the types of samples you are thinking about taking and the response times that you need.
- You will want to think about issues related to food safety concerns such as contaminants as well as wider consumer concerns about the accuracy of labelling information and presentation of the food to the consumer. As previously stated, you may consider canvassing the views of local businesses and consumers. The points on pages 15 and 16 may help you to think about whether there are issues you would want to investigate further.

When to sample

- The frequency of your visits and subsequently any samples you take, will mainly be determined by the risk assessment you make for individual premises. It makes sense to tie in sampling programmes with inspection programmes wherever possible. For instance, if you are the home authority and/or originating authority for any food or feed premises which deal in unusual products, which may act as wide distribution centres either within the UK or internationally, you will probably want to sample products from these premises more frequently than others.
- There may be seasonal factors associated with some businesses, such as fruit and vegetable packing and seasonal variations in the imports they receive, or farms where grain is stored for only part of the year.

- Some businesses will keep unusual hours and may require visits outside of normal working hours.

Where to sample

4.5 Choosing where to sample is closely linked with risk associated with a food or feed business. Your planned sampling and surveillance of food and feeding stuffs of manufacturers, distributors, caterers and retail outlets should take into account:

- local manufacturers (home authority)
- local manufacturers (originating authority)
- local importers
- local millers or maltsters
- local farms with on-site feed processors
- local farms with on-site grain stores/apple stores/lettuce groves
- participation in EC co-ordinated sampling programmes
- participation in national co-ordinated sampling programmes
- participation in Food Group or Regional Group sampling programmes
- imported food and feeding stuffs
- discretionary samples e.g. relating to a particular project or product

Planning for the unexpected

4.6 Whilst it is possible to prepare a plan for the majority of the samples you are proposing to take, not all sampling can be planned in advance.

4.7 By its nature, sampling of the unexpected cannot be thoroughly planned although you will need to have contingency plans in your sampling programme to deal with sudden changes in priorities which may arise in response to:

- consumer complaints
- Food Hazard Warnings and food suspected of contamination generally
- Changing local concerns
- RASFFs on food and feed from the EU
- Additional national surveillance programmes
- New businesses
- New products or manufacturing practices in existing businesses
- Observation during factory inspections

4.8 Appropriate procedures should be followed and enforcement officers need to be confident they are aware where they can go for help and advice. Such sampling would not generally form part of a planned programme, but contingency funding should be incorporated into the programme, possibly informed by the previous year's experience.

5 Risk based sampling

5.1 For the purposes of this guidance, 'risk' means the likelihood of occurrence of any fault with food or feed that may in any way be detrimental to the health, well-being or rights of the consumer, or the likelihood of contravention of the law. For a sampling programme to be effective, programmes should consider the risks presented by different types of food and feeding stuffs and associated materials.

5.2 An effective sampling programme should take into account the types of food businesses present, the nature of the food or feed handled, the size of the business and the procedures adopted by the food business to ensure compliance with legislation. You should consider things such as:

- Are you home authority and/or originating authority for any food premises that deal in unusual foodstuffs?
- Do you have any grain or feed mills in your area?
- Do you have any distribution centres which deliver food to a wide area?
- What type of goods do the importers in your area receive?
- What is the compliance history related to individual premises in food standards terms?
- Do you get information from other sources, for instance complaints from the public or other stakeholders, including enforcers?
- Do national sampling programmes highlight any food types which relate to specific premises in your area?
- Do you have any local arable farms?

5.3 Pages 15 and 16 of this guidance note highlight the kind of defects that should be borne in mind when developing sampling programmes and the table on pages 18 and 19 gives examples of food commodities and contaminants controlled by the Food Contaminants Regulations 2003.

In addition, Part 2 and 3 of this guidance deal with food standards issues and feeding stuffs issues respectively which have some very specific sampling requirements. You should consider the following risk-related issues for all samples you take:

- the severity of the effect of any given fault with the food or feeding stuff or its labelling;
- the likelihood of the occurrence of the fault;
- the consumption pattern applicable to the food;
- the size of the population likely to be affected;
- the degree of control and monitoring exercised by the manufacturer for all potential faults;
- the stage in the production and distribution chain at which the problem can occur or could be more easily detected;
- the compliance history of a food business;
- emerging national, European and wider international concerns;
- local consumer and business concerns.

6 Level of sampling

- 6.1 Sampling activity is monitored and assessed as part of the Agency's monitoring and audit arrangements under the Framework Agreement and to meet EU legislative requirements in accordance with Article 14 of the Official Control of Foodstuffs Directive and Directive 95/53. When auditing a local authority the Agency will check to ensure that local authorities have taken account of the Code of Practice and other centrally issued guidance on sampling requirements.
- 6.2 The Code of Practice sets out when routine sampling should be considered by local authorities as part of the inspection process for certain types of establishments, e.g. approved shellfish and egg product establishments.

6.3 Beyond those circumstances where routine sampling should be considered, there is a need for flexibility which recognises both the different circumstances faced by food authorities and the risk posed by products, processes and type of premises. A risk based approach does not support the imposition of targets for sampling that would be suitable for all food authorities.

6.4 This guidance does not set sampling levels for UK food authorities.

The Agency provides information annually on local authority sampling rates as part of its analysis of monitoring returns in the Local Authority Food Law Enforcement Activity Report. The data on sampling rates collected from LAs is not sufficient in itself to draw conclusions about efficiency and targeting. However, sampling rates for both formal and informal samples between LAs (e.g County, District, Unitary) types and within LA types vary enormously. The table below gives the average sampling rates (per 100 premises) for those authorities by type with the highest 25 per cent sampling rates. Food authorities should have regard to information about sampling levels achieved by food authorities elsewhere in the UK and should aim to improve rates towards the higher rates of other equivalent food authorities. This approach is consistent with the Best Value benchmarking process. In 2001, these rates were:

Average sampling rate of top 25 per cent of LAs by LA type	
	Number of samples per 100 premises
County (34)	37
District (238)	32
English Unitary (46)	60
London Borough (33)	20
Metropolitan Borough (37)	43
NI District (26)	117
Scottish Unitary (32)	82
Welsh Unitary (22)	46

Source: 2001 monitoring data provided to the Agency by LAs under the Framework Agreement monitoring arrangements.

6.5 Officers in Northern Ireland and Scotland will be aware of local arrangements in place:

- Northern Ireland : Guidance agreed between central government, district councils and the laboratories is that food standards sampling should be at a level of 2.5 per 1000 population. Microbiological sampling is set at approximately 8 per 1000 population (this excludes samples of swimming pool waters, bathing waters or other recreational water). Neither of the targets set include consumer complaint samples or investigation of food poisoning incidents.
- Scotland : There is a long-standing understanding that chemical sampling should be at 3 per 1000 population, although this is not an official target and is currently under review. No target has been agreed for microbiological sampling in recognition of the difficulty of doing so and the need to have a risk based approach.

7 Some risks and concerns to consider

Food Safety Risks to Consider

Is the product prone to contamination **by naturally occurring toxins**? For instance, aflatoxins found in nuts

Is it possible the product may have suffered from **contamination from the environment**? For instance, lead has been found in offal.

Is it possible that the product has suffered **contamination from harvesting processes**? For instance, beetles have been found in dates

Does the product contain **ingredients known to be allergens** and have they been labelled clearly? These would include nuts, fish products and milk products

Is it possible that the product has suffered **contamination from production processes**? This could include the presence of high levels of dioxins in feeding stuffs

Have **ingredients unsuitable for human consumption** been introduced into the food chain in specific products? For instance Sudan I dye

Does the product warrant checks **on the level of additives**? For instance, high levels of SO₂ have been found in sausages, and colours in drinks aimed at children

Could the product have suffered **deterioration during production or storage**? This could include protein breakdown in meat and fish and migration from packaging

Some Consumer Interest Concerns to consider in food safety

Is the product of the **nature, substance or quality demanded**? For instance, undeclared water added to chicken been identified as a problem

Has the product been **presented inaccurately or in a way which could mislead**? For instance, fat hidden under the lean meat displayed in a pre-packed tray

Are there **incomplete, inaccurate or fraudulent declarations or claims being made**? For example, a product with a picture of a cow with no dairy content

Does the product **comply with compositional standards**? These may be legislative (e.g. the minimum meat content of a sausage) or customary (e.g. the maximum fat content in minced meat)

Does the product make the **required statutory declarations**? For instance, for the presence of GMOs, irradiated food, and QUID and are they correct

Does the product have a **health claim**? - Is the claim substantiated and does it state or imply that disease could be treated cured or prevented?"

8 Existing guidance on sampling

8.1 Existing guidance on sampling is set out in:

- The draft 'Food Safety Act 1990 Code of Practice' produced by the Food Standards Agency. Section 6 of the Code sets out the procedures to be followed when food samples are taken under the Food Safety Act 1990 and the Food Safety (Sampling and Qualifications) Regulations 1990.
- 'Guidelines for the preservation of official samples for analysis, Guideline No. 36, 2002' produced by Campden & Chorleywood Food Research Association Group. This booklet gives clear and practical guidance on the storage and transport of official samples to preserve them for analysis.
- 'Guidance on Food Sampling for Microbiological Examination, January 2002' produced by LACORS. This document includes general good practical advice and is applicable to all microbiological food samples.
- 'Food Sampling Policies and Associated Guidance, Issue 2, 9 February 1998' produced by the Northern Ireland Food Liaison Group. This guidance covers both microbiological and chemical sampling and promotes efficient and effective co-ordination of food sampling throughout Northern Ireland.
- 'Food - Inspection, Guideline for Official Sampling' produced by the European Working Community for Food Inspection and Consumer Protection (EWFC). This guideline describes a baseline standard for member states and aims to harmonize the sampling in the EU. It is available online at <http://www.ewfc.org/guidesampling.htm>

9 Examples of food commodities and contaminants controlled by the Food Contaminants Regulations 2003

Food Commodity Group	Contaminants	
Cereals and cereal products	aflatoxin B ₁ aflatoxins (B ₁ +B ₂ +G ₁ +G ₂) ochratoxin A lead cadmium	
Dairy products	lead dioxins aflatoxin M ₁ (except butter fat and milk fat)	
Eggs and egg products	dioxins	
Fats (inc. milk fat)	lead cadmium dioxins	
Fishery products	lead cadmium mercury (except bivalve molluscs, cephalopods, crustaceans) dioxins in fishery products	
Fruit dried – general also:	lead cadmium ochratoxin A aflatoxin B ₁ aflatoxins (B ₁ +B ₂ +G ₁ +G ₂)	dried vine fruit (currants, raisins, sultanas) apricots dates dried vine fruit (currants, raisins, sultanas) figs plums
Fruit – fresh, uncooked or frozen	lead cadmium patulin (in apple products)	

Cont'd..

Food Commodity Group	Contaminants
Fruit juices and nectars	lead cadmium patulin (in apple products)
Funghi	lead cadmium
Fresh herbs	lead cadmium
Hydrolysed vegetable protein	3-MCPD
Legumes	lead cadmium aflatoxin B ₁ (in groundnuts/peanuts) aflatoxins (B ₁ +B ₂ +G ₁ +G ₂) (in groundnuts/peanuts)
Meat	lead cadmium dioxins (in farmed game)
Mushrooms	lead cadmium
Nuts	lead cadmium aflatoxin B ₁ aflatoxins (B ₁ +B ₂ +G ₁ +G ₂)
Offal (cattle, sheep, pig, poultry)	lead cadmium dioxins (in liver)
Pulses	lead cadmium
Soy Sauce	3-MCPD
Certain Spices	aflatoxin B ₁ aflatoxins (B ₁ +B ₂ +G ₁ +G ₂)
Vegetables – fresh, uncooked, frozen or dried	lead cadmium nitrate (in lettuce and spinach)
Wine	lead

10 Examples of Feed Contaminants

Feeding stuff	Contaminant(s)
Animal by-products containing bone	fluorine
Any feedingstuff	lead
Compound feedingstuffs where, for example, fluoride-rich mineral supplements have been used and which contains calcium and phosphorus derived from fluoride-rich ores	fluorine
Compound feeds containing significant proportions of fish meal or feed derived from other marine animals; and fishmeal or feedingstuffs produced by the processing of fish or other marine animals	arsenic mercury nitrates
Compound feeds in which, for example, the added phosphorus has been derived from cadmium-rich superphosphates; and mineral feedingstuffs, particularly those with high phosphorus content	cadmium
<p>Feed Materials (single ingredients fed on their own or for processing into compound feeds)</p> <ul style="list-style-type: none"> <li data-bbox="236 1384 839 1603">- Feed derived from, for example, cocoa (<i>Theobroma cacao</i> L) seeds, including Cocoa hulls, Cocoa oil meal and compound feedingstuffs containing significant proportions of cocoa bean meal <li data-bbox="236 1644 839 1863">- Feed derived from oils seed rape (<i>Brassica napus</i> L) i.e. rapeseed meals, rapeseed oil meals e.g. associated with rape poisoning/toxicity to the hearts of certain mammalian/avian species 	<p>theobromine [non-ruminants (pigs, poultry and horses) more susceptible to theobromine poisoning]</p> <p>vinylthiooxazolidone</p>

Cont'd..

Feeding stuff	Contaminant(s)
<ul style="list-style-type: none"> - Oil seed rape meal which causes mustard poisoning - Feeds derived from lupin (<i>Lupinus</i> spp.) seed (blue, white and yellow varieties) – causes lupins poisoning - Predominately found in feed derived from oil seed rape (<i>Brassica napus</i>) - Feeds derived from cotton seed, including whole cotton, cotton seed meal, cotton oil meal - Feeds derived from manioc (casava) including roots, leaves and stems; feeds derived from linseed, including whole seed and linseed oil meal (oil extracted); dehydrated chaya (<i>Cnidioscolus chayamansa</i> McVaugh) leaves; mango kernal oil meal - Rye grain (<i>Claviceps purpurea</i>) or other wheat and other cereals, compound feeds containing cereals; grasses and feeds derived from them 	<p>volatile mustard oil</p> <p>alkaloids</p> <p>glucosides (<i>Glucosinolates</i>) (antinutritional factor from glucosuolates (a group of sulphur glucosides)</p> <p>free Gossypol</p> <p>hydrocyanic acid (or prussic acid)</p> <p>ergotoxin/ergometrine</p>
<p>Feed supplements where certain binders, anti-caking agents and coagulants have been incorporated or feed supplements that have been subject to drying (heating) using fuel oils or produced in close proximity to incinerators</p>	<p>dioxins PCB's</p>
<p>Imported feeds, usually as the husk (pod) of the castor oil plant (<i>Ricinus Communis</i>) (causes Castor seed poisoning)</p>	<p>ricine</p>
<p>Imported ground nut , copra (coconut), palm-kernel, cotton seed, babassu, maize and products derived from the processing thereof</p>	<p>aflatoxin B₁</p>