

## **VETERINARY RESIDUES COMMITTEE (VRC) ANNOUNCEMENT ON THE RESULTS OF THE BRAND NAMING SURVEY OF CHLORAMPHENICOL, NITROFURANS AND STREPTOMYCIN IN HONEY**

A brand naming survey carried out by the Veterinary Medicines Directorate (VMD) on behalf of the VRC found no evidence of the use of chloramphenicol, nitrofurans or streptomycin in samples of imported and home produced honey.

The Committee recommended that honey should be tested for these veterinary medicines because they wished to continue with their message to producers that the use of unauthorised substances in farming should not be tolerated.

A total of 100 samples of home produced and imported honey were analysed in the survey carried out between July and November 2005. No residues of chloramphenicol or streptomycin were detected. The analysis for nitrofurans detected residues of semicarbazide (SEM) in eight samples of imported honey. Following the confirmation of these residues the Food Standards Agency (FSA) was informed of the results.

The results of industry analysis of the bulk honey, from which these samples originated, showed that the honey in question was free of SEM residues prior to packing, indicating that these residues were not the result of nitrofuran use.

SEM residues in food may arise from sources other than nitrofuran use. One source is from azodicarbonamide (ADC) used in the manufacture of plastic gaskets used to seal glass jars. A European Commission ban on the use of ADC in food contact materials came into effect on 2 August 2005 (Commission Directive 2004/1/EC). Once existing stocks of packaged foods are used up, exposure of consumers by this route should be eliminated. The VRC acknowledges the efforts made by industry to resolve the issue.

The VRC is reassured by the overall findings of the survey, which showed no evidence of the use of these active ingredients in the production of the honey sampled. It has noted and welcomed;

- An Opinion by the European Food Safety Authority (EFSA) in June 2005, which concludes that new information about SEM shows it is not a concern for human health at the levels currently found in food from sources other than nitrofurazone use,
- The ban on the use of ADC in food contact materials.

## **Results of the brand naming survey for chloramphenicol, nitrofurans and streptomycin in honey.**

### **Summary**

A survey of chloramphenicol, nitrofurans and streptomycin in home produced and imported honey was carried out by the VMD between July and November 2005. The purpose of the survey was to assess the incidence of residues of these three active ingredients in honey available from retail outlets. The use of chloramphenicol and nitrofurans in the treatment of food producing animals is prohibited in the EU. Streptomycin is authorised for use in cattle, sheep and pigs but not bees.

A total of 100 samples of retail honey were analysed for residues of chloramphenicol, nitrofurans and streptomycin. Samples for the survey were purchased by the market research organisation Mintel International Group Ltd from various types of retail outlets across the UK. All the samples were analysed by the Central Science Laboratory (CSL) using validated methods of analysis.

No residues of chloramphenicol or streptomycin were detected in any of the samples. Residues of SEM, the marker residue for one of the four nitrofurans covered by the assay, were confirmed in eight samples. Checks carried out by the FSA and VMD on the supplier's bulk honey data indicated that the likely cause of these residues was the result of leaching from the jar gaskets and not due to nitrofuran use.

The limits of quantification for the three substances were 0.3 µg/kg for chloramphenicol, 20 µg/kg for streptomycin and 1 µg/kg for nitrofurans. The limits for chloramphenicol and nitrofurans are in line with the EU Minimum Required Performance Limits (MRPLs) for these substances.

The results show that the incidence of residues of these substances in honey has fallen significantly compared with surveillance data for 2003 and 2004 when residues of all three substances were detected in samples of imported honey.

Annex 1 gives details of the samples purchased and Annex 2 sets out comments received from the retailers whose samples were found to be contaminated with SEM. Annex 3 outlines work done by the FSA to differentiate between nitrofuran use and the presence of other sources of SEM.

## Background

Honeybees are afflicted by a number of pests and diseases. These include parasitic mites such as *Varroa destructor* and *Tropilaelaps*, together with bacterial, protozoan, virus and fungal infections.

Two of the most serious are bacterial infections that affect the developing brood. They are American foul brood (AFB) and European foul brood (EFB) disease, both of which are notifiable under UK bees legislation.

Various antibiotics are used around the world as one of the means to control foul brood, and in particular AFB. However, there are very few authorised veterinary medicines for the relevant treatment of bees within the EU. A number of countries have moved to a policy of destruction rather than treatment to contain this disease.

Residues of streptomycin were first detected in honey under the non-statutory surveillance programme in 2000. Following a Food and Veterinary Office (FVO) mission to China in 2001, it became clear that substances such as chloramphenicol that are prohibited for use in food producing animals in the EU were being used in the treatment of bee diseases in some third countries. Testing for chloramphenicol under the non-statutory and statutory surveillance programmes was introduced in 2002. Following further intelligence on the possible use of prohibited substances, testing for four nitrofurans metabolites was introduced in 2003. The four metabolites, with the parent compound given in brackets, were AOZ (furazolidone), AMOZ (furaltidone), SEM (nitrofurazone) and AHD (nitrofurantoin).

### Results of non-statutory surveillance of imported honey

Year	Substance tested for	Number of samples tested	Number of samples positive
2002	chloramphenicol	105	1
	streptomycin	105	26
2003	chloramphenicol	106	1
	streptomycin	106	6
	nitrofurans	106	10 AOZ, 1 AMOZ, 2 SEM <sup>a</sup>
2004	chloramphenicol	100	1
	streptomycin	100	4
	nitrofurans	102	1 AOZ, 11 SEM <sup>b</sup>

#### Explanatory note:

<sup>a</sup> – It is not possible to say whether these residues were the result of contamination from the plastic gaskets used to seal the jars of honey.

<sup>b</sup> – Eight of the eleven results were likely to have been caused by contamination from the gaskets, as the bulk honey data was negative for residues of SEM.

## Legislation

EC legislation requires that all active ingredients used in veterinary medicines for food producing animals must be assessed so that a Maximum Residue Limit can be set. Chloramphenicol and nitrofurans are listed under Annex IV of Council Regulation 2377/90 and their use in food producing animals is prohibited in the EU. Countries that wish to export food of animal origin to the EU must respect the requirements of this legislation. Commission Decision 2002/657 introduced the concept of Minimum Required Performance Limits (MRPLs). This is the concentration level at which regulatory laboratories should at least be able to detect and confirm the presence of particular substances. Article 6.3 of the Decision states "If no permitted limit has been established for a substance, the decision limit is the lowest concentration level at which a method can discriminate with a statistical certainty of  $1 - \alpha$  that the particular analyte is present." In March 2003, the Commission set MRPLs for chloramphenicol in honey (amongst other foods) and nitrofurans in fish and poultry (Commission Decision 2003/181). From 19 February 2005, Commission Decision 2005/34 required that existing MRPLs should be read across to all foods.

Streptomycin is authorised for use in cattle, sheep and pigs but not bees. It follows that no residues of streptomycin should be present in honey sold for human consumption.

## Sampling

In this survey, 100 samples of retail honey were analysed. The countries of origin of the samples were as follows:

<b>UK</b>	<b>EU</b>	<b>Non-EU</b>	<b>More than 1 country of origin</b>
6 UK	5 Greece	1 America	2 Australia/New Zealand
8 England	1 France	1 Argentina	1 Australia/Argentina
1 Scotland	3 Hungary	9 Australia	23 Blend of EC/non-EC countries
1 Wales	1 Italy	7 Brazil	1 Non-EU/South/Middle USA
	2 Romania	2 Canada	
	4 Spain	1 Chile	
		7 Mexico	
		9 New Zealand	
		3 Tasmania	
		1 Turkey	

Mintel International Group Ltd purchased the samples between July and September 2005. Sampling was spread across all four countries of the United Kingdom based on population density. The number of samples purchased from specific retail outlets was based on the latest available market share data for honey and included both retailer and brand share. The sample size was a minimum of 250 g of honey. Details of all samples purchased for the survey are given at Annex 1.

## **Methodology**

All samples were transported to CSL at ambient temperature and maintained at ambient temperature on arrival. Samples were mechanically stirred if there was any evidence of separation on inspection and analysis aliquots taken. The remainder of the sample was retained as an archive portion for further analysis should this be necessary.

In-house reference materials were prepared from incurred materials and analysed to establish nominal values for chloramphenicol, streptomycin and AOZ (3-amino-2-oxazolidinone, a marker metabolite of the nitrofuran furazolidone).

Samples were analysed by validated UKAS accredited methodology.

The principles of the methods are as follows:

### Chloramphenicol

Honey is dissolved in water. The solution is applied to a Chem Elut cartridge and eluted in dichloromethane. The eluent is reduced to near dryness under nitrogen, resuspended in hexane/ethyl acetate and loaded onto a pre-conditioned NH<sub>2</sub> SPE cartridge. The cartridge is washed with ethyl acetate and the analyte eluted with ethyl acetate/methanol. The eluent is reduced to dryness under nitrogen and resuspended in HPLC grade water. Samples were analysed using LC/MS/MS (Isocratic C18 LC with negative ion electropray MS/MS).

### Streptomycin

Honey is warmed and vortexed in a water and dichloromethane mix. After shaking and centrifugation, the supernatant is applied to a polymeric solid phase extraction (SPE) cartridge and eluted with an alkaline phosphate buffer. The eluent is added straight into a micotiter plate well.

Analysis of the extract is carried out by Biacore Q biosensor. The detection principal employed is Surface Plasmon Resonance (SPR). The immunoassay configuration is competitive inhibition format with the antigen (streptomycin) immobilised on the sensor chip surface. The sample and streptomycin antibody are pre-mixed and injected over the sensor chip surface where the competition occurs.

### Nitrofurans

Nitrofurans metabolites are extracted from tissue with water and 0.1M hydrochloric acid. The metabolites are derivatised with 2-nitrobenzaldehyde, and the sample neutralised with 0.1M dipotassium hydrogen orthophosphate and 1M sodium hydroxide. The extract is applied to a Solid Phase Extraction (SPE) cartridge. The 2-nitrobenzaldehyde derivatives are eluted with ethyl acetate. The eluate is evaporated to dryness and the residue redissolved in

methanol/water mobile phase. The nitrofuran derivatives are determined by reversed phase LC-MSMS. Extracted matrix standards are used for calibration and d<sub>5</sub>-AMOZ, d<sub>4</sub>-AOZ, 2,4,5-[<sup>13</sup>C<sub>3</sub>]-AHD & 1,2-[<sup>15</sup>N<sub>2</sub><sup>13</sup>C]-SEM are used as internal standards which gives implicit recovery correction for all analytes.

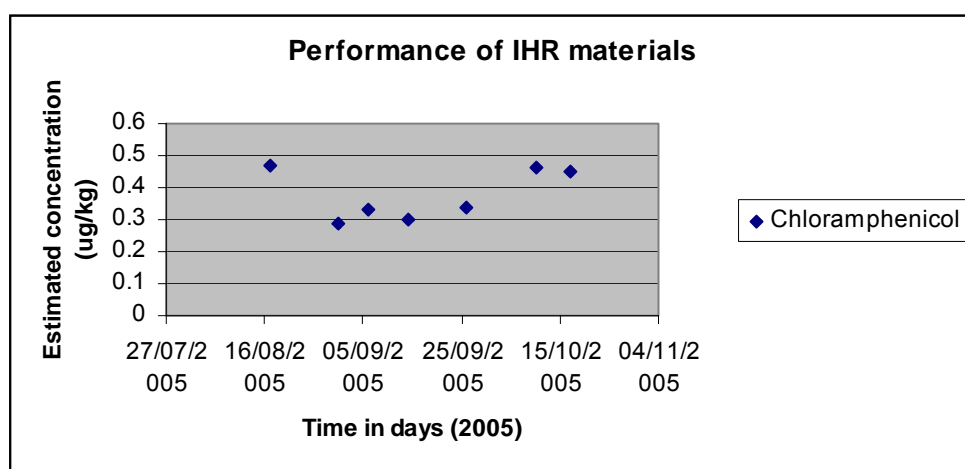
## Quality Assurance

### Chloramphenicol

Samples were screened using LCMSMS. No suspect positives were obtained and so quantitative confirmation was not required.

All screening batches included known blank samples, multilevel solvent standards, single level matrix matched standards and matrix matched spikes (i.e. a known amount of analyte added to a known blank prior to extraction). All results were recovery corrected against d<sub>5</sub>-chloramphenicol internal standard.

An in-house reference (IHR) material that had been stored in the same way as samples was used throughout the survey to establish stability and continuity of performance of the methods (results below). This material showed no sign of deterioration of analyte over the period of the survey.



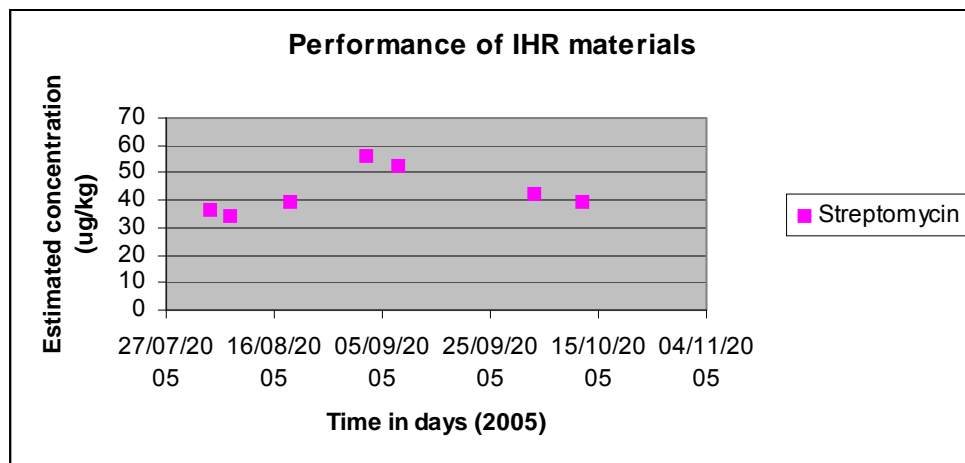
Quality assurance was also determined by participation in UK and EU proficiency schemes and collaborative studies.

### Streptomycin

Samples were screened using an optical biosensor. No suspect positives were obtained and so quantitative confirmation was not required.

All screening batches included known blank samples, extracted multilevel matrix matched standards and matrix matched spikes (i.e. a known amount of analyte added to a known blank prior to extraction). No recovery correction was required as unknowns were compared to extracted standards.

An in-house reference (IHR) material that had been stored in the same way as samples was used throughout the survey to establish stability and continuity of performance of the methods (results below). This material showed no sign of deterioration of analyte over the period of the survey.



Quality assurance was also determined by participation in UK and EU proficiency schemes and collaborative studies.

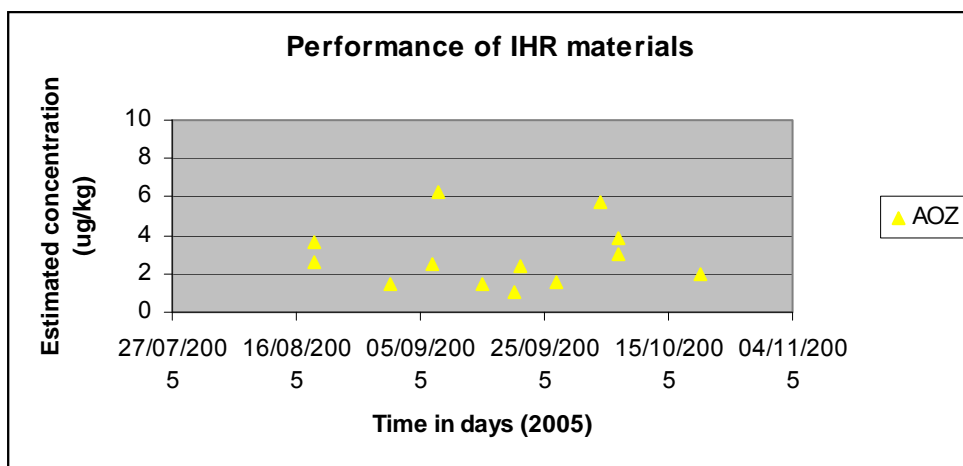
### Nitrofurans

Samples were screened using LCMSMS. Suspect positive samples were confirmed quantitatively by LCMSMS. Confirmatory analysis was performed on a separate subsample.

All screening batches included known blank samples and extracted two level matrix matched standards (i.e. a known amount of analyte added to a known blank prior to extraction). All results were recovery corrected against d<sub>5</sub>-AMOZ, d<sub>4</sub>-AOZ, 2,4,5-[<sup>13</sup>C<sub>3</sub>]-AHD & 1,2-[<sup>15</sup>N<sub>2</sub><sup>13</sup>C]-SEM internal standards.

All quantitation batches included multilevel matrix matched standards and duplicate sample extracts in addition to the QA samples included for screening.

An in-house reference (IHR) material that had been stored in the same way as samples was used throughout the survey to establish stability and continuity of performance of the methods (results below). This material showed no sign of deterioration of analyte over the period of the survey.



**Quality assurance was also determined by participation in UK and EU proficiency schemes and collaborative studies.**

### **LOD, LOQ and measurement uncertainty.**

The LOD for chloramphenicol was estimated at 0.05 µg/kg. The LOQ is defined by CSL as being the lowest level at which the procedure was validated with spiked samples. A level of 0.3 µg/kg has been demonstrated for chloramphenicol. The expanded uncertainty for chloramphenicol at the 95% confidence limit has been estimated at ± 0.06 µg/kg.

The LOD for streptomycin was estimated at 10 µg/kg. The LOQ is defined by CSL as being the lowest level at which the procedure was validated with spiked samples. A level of 20 µg/kg has been demonstrated for streptomycin. The expanded uncertainty for streptomycin at the 95% confidence limit has been estimated at ± 6 µg/kg.

The LOD for nitrofurans was estimated at 0.5 µg/kg. The LOQ is defined by CSL as being the lowest level at which the procedure was validated with spiked samples. A level of 1 µg/kg has been demonstrated for nitrofurans. The expanded uncertainties for each of the marker metabolites of nitrofurans at the 95% confidence limit has been estimated at ± 0.2 µg/kg AOZ (furazolidone), ± 0.1 µg/kg AMOZ (furaltadone), ± 0.3 µg/kg SEM (nitrofurazone) and ± 0.15 µg/kg AHD (nitrofurantoin).

### **Results**

Full results of the survey are detailed in Annex 1. The survey found that none of the 100 samples tested contained detectable residues of streptomycin or chloramphenicol. No residues were found of the nitrofurans metabolites AOZ, AHD or AMOZ. Residues of SEM were detected in eight samples. These samples were subject to both screening and confirmatory analyses.

All results were corrected for recovery. In accordance with the FSA survey guidelines, the retailers of the contaminated samples were asked if they

wished to comment on the confirmed results. Their comments are set out in Annex 2.

### **Action taken on residue findings**

Following confirmation of the residues of SEM in eight samples, the VMD contacted the retailers concerned and asked for the SEM testing data for the bulk honey from which the honey samples were derived and supporting importation documents. The suppliers provided this data for all of the affected samples. The information was then checked by the VMD and the FSA to establish an audit trail from the sample to the tested consignment.

Having assessed the information provided, the FSA concluded that there was sufficient evidence to indicate that the presence of SEM in the honey was likely to have derived from the jar gaskets and was unlikely to have arisen due to the unauthorised use of nitrofurans.

### **Consumer safety**

The European Food Safety Authority (EFSA) published a new Opinion on SEM in food in June 2005. It concluded that new information about SEM itself shows that it is not a concern for human health at levels currently found in food from sources other than nitrofurazone use.

The European Commission has, however, banned the use of ADC in food contact materials from 2 August 2005, so once existing stocks of packaged food with long shelf lives, such as honey, are used up consumer exposure to SEM from this route should end.

### **Conclusions**

The purpose of the survey was to assess the incidence of residues of chloramphenicol, nitrofurans and streptomycin in honey available from retail outlets. These active ingredients were chosen because of their unauthorised presence in honey samples analysed in previous years. The results of this survey found no evidence of the use of chloramphenicol, nitrofurans or streptomycin in samples of imported and home produced honey.

**ANNEX 1**

Customer Sample Number	Retailer Name and Address	Date of Purchase	Brand	Type of Honey	Country of Origin	Best Before Date	Overall Sample Result	Value at or above *MRPL/RL (µg/kg)
05N1741	Sainsburys Edinburgh EH4 2EB	25/07/2005	Sainsburys Taste the Difference	Tasmanian Leatherwood Honey	Tasmania	Apr-06	Negative	
05N1742	Sainsburys Edinburgh EH4 2EB	25/07/2005	Sainsburys Taste the Difference	Mexican Honey	Mexico	Oct-06	Negative	
05N1743	Somerfield Edinburgh EH11 2EZ	25/07/2005	Dana	Pure Set Honey	Blend of EC & non EC Honey	27/07/2006	Negative	
05N1744	Somerfield Edinburgh EH11 2EZ	25/07/2005	Rowse	Squeezable Organic Honey	Brazil	Nov-06	Negative	
05N1745	Peckham & Rye Edinburgh EH10 4DG	25/07/2005	Tiptree Wilkin & Sons Ltd	Pure English Honey	England	Oct-06	Negative	
05N1746	Tesco Leeds LS14 6JD	25/07/2005	Tesco Finest	English Set Honey	United Kingdom	Nov-06	Negative	
05N1747	Tesco Leeds LS14 6JD	25/07/2005	Tesco Finest	Greek Honey	Greece	Nov-06	Negative	
05N1748	Tesco Leeds LS14 6JD	25/07/2005	Tesco Finest	Pure Mexican Honey	Mexico	Nov-06	Negative	
05N1749	Asda Leeds LS14 6UF	26/07/2005	Asda Extra Special	Sunflower Honey	Romania	02/12/2006	Negative	
05N1750	Tesco Leeds LS14 6JD	25/07/2005	Manuka	Medi Honey Active	Australia & New Zealand	13/03/2007	Negative	
05N1751	Tesco Birmingham B90 3LU	01/08/2005	Rowse	Pure Natural Acacia Squeezable	Hungary	Nov-06	Negative	
05N1752	Tesco Birmingham B90 3LU	01/08/2005	Rowse	Tasmanian Leatherwood Honey	Tasmania	Sep-06	Negative	

Customer Sample Number	Retailer Name and Address	Date of Purchase	Brand	Type of Honey	Country of Origin	Best Before Date	Overall Sample Result	Value at or above *MRPL/RL (µg/kg)
05N1753	Morrisons Birmingham B10 0XA	01/08/2005	Rowse	Clear Organic Honey	Brazil	Nov-06	Negative	
05N1754	Morrisons Birmingham B10 0XA	01/08/2005	Capilano	Pure Australian Honey	Australia	06/03/2007	Negative	
05N1755	Holland & Barrett Birmingham B31 2JU	01/08/2005	Holland and Barrett	Spanish Honey	Spain	Apr-07	Negative	
05N1756	Tesco Carlisle CA3 0JQ	01/08/2005	Gales	Pure Honey	Blend of EC & non EC Honey	Dec-06	Positive	1.3 SEM
05N1757	Tesco Carlisle CA1 2SB	01/08/2005	Gales	Set Honey	Blend of EC & non EC Honey	Dec-06	Negative	
05N1758	Asda Carlisle CA3 0JQ	01/08/2005	Asda	Australian Honey	Australia	21/12/2006	Negative	
05N1759	Asda Carlisle CA3 0JQ	01/08/2005	Asda Fairtrade	Oganic Clear Mexican Honey	Mexico	08/12/2006	Negative	
05N1760	Half Moon Wholefoods Carlisle CA8 1HG	01/08/2005	Cumbria Honey	Cumbria Honey	England	02/07/2006	Negative	
05N1761	Sainsburys Nottingham NG9 2LA	08/08/2005	Sainsburys Taste the Difference	Manuka	Australia/New Zealand	10/05/2007	Negative	
05N1762	Sainsburys Nottingham NG9 2LA	08/08/2005	Capilano	Pure Australian Honey	Australia	10/01/2007	Negative	
05N1763	Sainsburys Nottingham NG9 2LA	08/08/2005	Sainsburys	Organic Pure Clear Honey	Brazil	Dec-06	Negative	
05N1764	Kwik Save Beeston Nottingham	08/08/2005	Gales	Pure Honey	Blend of EC & non EC Honey	Dec-06	Positive	1.3 SEM

Customer Sample Number	Retailer Name and Address	Date of Purchase	Brand	Type of Honey	Country of Origin	Best Before Date	Overall Sample Result	Value at or above *MRPL/RL (µg/kg)
05N1765	Holland & Barrett Beeston Nottingham	08/08/2005	GFM	Organic Pine Forest Honey	Turkey	May-07	Negative	
05N1766	Sainsburys Plymouth PL1 1LE	08/08/2005	Rowse	Pure Natural Blossom Honey	Blend of EC & non EC Honey	Dec-06	Negative	
05N1767	Sainsburys Plymouth PL3 6RL	08/08/2005	Gales	Pure Honey	Blend of EC & non EC Honey	Jan-07	Negative	
05N1768	Sainsburys Plymouth PL3 6RL	08/08/2005	Rowse	Clover Honey	Blend of EC & non EC Honey	Dec-06	Negative	
05N1769	Waitrose Plymouth PL12 6LD	08/08/2005	Rowse	Cut Comb in Acacia Honey	Blend of EC & non EC Honey	Nov-05	Negative	
05N1770	Holland & Barrett Plymouth PL1 1LR	08/08/2005	Holland and Barrett	English Set Honey	England	Jun-06	Negative	
05N1771	Tesco Leicester LE4 1DE	15/08/2005	Gales	Set Honey	Blend of EC & non EC Honey	Jan-07	Negative	
05N1772	Tesco Leicester LE4 1DE	15/08/2005	Gales	Pure Honey	Blend of EC & non EC Honey	Dec-06	Negative	
05N1773	Asda Leicester LE3 2LL	15/08/2005	Rowse	Organic Honey	Brazil	Dec-06	Negative	
05N1774	Asda Leicester LE3 2LL	15/08/2005	Rowse	New Zealand Clover Honey	New Zealand	Dec-06	Negative	
05N1775	Health & Diet Leicester LE1 5ET	15/08/2005	Rowse	English Honey	England	Jul-06	Negative	
05N1776	Tesco Newcastle NE3 2FP	15/08/2005	Tesco Finest	Set Honey	England	Dec-06	Negative	

Customer Sample Number	Retailer Name and Address	Date of Purchase	Brand	Type of Honey	Country of Origin	Best Before Date	Overall Sample Result	Value at or above *MRPL/RL (µg/kg)
05N1777	Tesco Newcastle NE3 2FP	15/08/2005	Tesco Finest	New Zealand Clover Set Honey	New Zealand	Nov-06	Negative	
05N1778	Tesco Newcastle NE3 2FP	15/08/2005	Tesco Finest	Greek Honey	Greece	Nov-06	Negative	
05N1779	Morrisons Newcastle NE12 6YT	15/08/2005	Gales	Pure Honey	Blend of EC & non EC Honey	Dec-06	Positive	1.0 SEM
05N1780	Morrisons Newcastle NE12 6YT	15/08/2005	Gales	Set Honey	Blend of EC & non EC Honey	Oct-06	Negative	
05N1781	Marks & Spencer Londonderry BT48 6XY	22/08/2005	Marks & Spencer	New Zealand Honeycomb	New Zealand	01/02/2006	Negative	
05N1782	Marks & Spencer Londonderry BT48 6XY	22/08/2005	Marks & Spencer	Orange Blossom Honey	Spain	05/04/2006	Negative	
05N1783	Marks & Spencer Londonderry BT48 6XY	22/08/2005	Marks & Spencer	Wild Flower Honey	Australia/Argentina	05/04/2006	Negative	
05N1784	Dunnes Stores Londonderry BT48	22/08/2005	Gales	Pure Honey	Blend of EC & non EC Honey	31/07/2006	Positive	3 SEM
05N1785	Longs Supermarket Londonderry BT47 6QG	22/08/2005	Clover Crest	Pure Canadian Honey	Canada	20/09/2006	Negative	
05N1786	Tesco Oxford OX14 1TV	22/08/2005	Rowse	Spanish Lavender Honey	Spain	Oct-06	Negative	
05N1787	Tesco Oxford OX14 1TV	22/08/2005	Rowse	Italian Chestnut Honey	Italy	Dec-06	Negative	
05N1788	Somerfield Oxford OX14 3QT	22/08/2005	Gales	Pure Honey	Blend of EC & non EC Honey	Dec-06	Negative	

Customer Sample Number	Retailer Name and Address	Date of Purchase	Brand	Type of Honey	Country of Origin	Best Before Date	Overall Sample Result	Value at or above *MRPL/RL (µg/kg)
05N1789	Somerfield Oxford OX14 3QT	22/08/2005	Rowse	Pure Natural Blossom Honey	United Kingdom	Nov-06	Negative	
05N1790	Frugal Food Oxford OX14 5BL	22/08/2005	Rowse	Tasmanian Leatherwood Honey	Australia	Aug-06	Negative	
05N1791	Morrisons Gloucester BS10 7UD	29/08/2005	Morrisons	Pure Set Honey	Blend of EC & non EC Honey	Dec-06	Negative	
05N1792	Morrisons Gloucester BS10 7UD	29/08/2005	Morrisons	Pure Clear Honey	Blend of EC & non EC Honey	Nov-06	Negative	
05N1793	Asda Gloucester GL1 1DS	29/08/2005	Gales	Set Honey	Blend of EC & non EC Honey	31/01/2007	Negative	
05N1794	Asda Gloucester GL1 1DS	29/08/2005	Gales	Pure Honey	Blend of EC & non EC Honey	31/01/2007	Negative	
05N1795	Holland & Barrett Gloucester GL1 1PD	29/08/2005	Holland and Barrett	English Honey	England	Jun-06	Negative	
05N1796	Sainsburys Harrogate HG2 8QZ	29/08/2005	Sainsburys Taste the Difference	Australian Honey	Australia	08/02/2007	Positive	2.4 SEM
05N1797	Sainsburys Harrogate HG2 8QZ	29/08/2005	Sainsburys Taste the Difference	Greek Honey	Greece	Dec-06	Negative	
05N1798	Sainsburys Harrogate HG2 8QZ	29/08/2005	Rowse	Pure Natural Acacia Honey	Hungary	Oct-06	Negative	
05N1799	Waitrose Harrogate HG1 1HD	29/08/2005	Waitrose	English Honey	United Kingdom	Jan-07	Negative	

Customer Sample Number	Retailer Name and Address	Date of Purchase	Brand	Type of Honey	Country of Origin	Best Before Date	Overall Sample Result	Value at or above *MRPL/RL (µg/kg)
05N1800	Holland & Barrett Harrogate HG1 1QF	29/08/2005	Capilano	Pure Australian Honey	Australia	17/02/2007	Positive	2.1 SEM
05N1801	Tesco Brighton BN32 2DL	05/09/2005	Tesco Finest	Greek Honey	Greece	Jan-07	Negative	
05N1802	Tesco Brighton BN32 2DL	05/09/2005	Tesco Finest	English Set Honey	United Kingdom	Dec-06	Negative	
05N1803	Tesco Brighton BN32 2DL	05/09/2005	Tesco Finest	Australian Eucalyptus Honey	Australia	Nov-06	Negative	
05N1804	Asda Brighton BN1 8AS	05/09/2005	Rowse	Spanish Eucalyptus Honey	Spain	Sep-06	Negative	
05N1805	Asda Brighton BN1 8AS	05/09/2005	Asda Fairtrade	Organic Clear Mexican Honey	Mexico	14/12/2006	Negative	
05N1806	Sainsburys Shrewsbury SY3 9NB	05/09/2005	Rowse	Organic Clover Honey	New Zealand	Dec-06	Negative	
05N1807	Sainsburys Shrewsbury SY3 9NB	05/09/2005	Rowse	Forest Organic Honey	New Zealand	Dec-06	Negative	
05N1808	Sainsburys Shrewsbury SY3 9NB	05/09/2005	Gales	Pure Honey	United Kingdom	Jan-07	Negative	
05N1809	Morrisons Shrewsbury SY1 4DL	05/09/2005	Rowse	Clear Organic Honey	Brazil	Dec-06	Negative	
05N1810	Morrisons Shrewsbury SY1 4DL	05/09/2005	Rowse	Set Organic Honey	Brazil	Oct-06	Negative	

Customer Sample Number	Retailer Name and Address	Date of Purchase	Brand	Type of Honey	Country of Origin	Best Before Date	Overall Sample Result	Value at or above *MRPL/RL (µg/kg)
05N1811	Tesco Cardiff CF14 3AT	12/09/2005	Rowse	Pure Natural Acacia Honey	Hungary	Dec-06	Negative	
05N1812	Tesco Cardiff CF14 3AT	12/09/2005	Rowse	Fairtrade Pure Natural Chilean Honey	Chile	Dec-06	Negative	
05N1813	Asda Cardiff CF11 0JR	12/09/2005	Rowse	New Zealand Clover Honey	New Zealand	Oct-06	Negative	
05N1814	Asda Cardiff CF11 0JR	12/09/2005	Rowse	Clear Organic Honey	Brazil	Dec-06	Negative	
05N1815	Cardiff Health Foods Cardiff CF5 1GX	12/09/2005	W V Chivers	Pure Welsh Honey	Wales	31/12/2009	Negative	
05N1816	Morrisons Woking GU21 1LL	12/09/2005	Morrisons - The Best	Mexican Honey	Mexico	Dec-06	Negative	
05N1817	Morrisons Woking GU21 1LL	12/09/2005	Morrisons - The Best	Australian Honey	Australia	Jan-07	Negative	
05N1818	Waitrose West Byfleet KY14 6NE	12/09/2005	Waitrose	Romanian Coriander Honey	Romania	May-06	Positive	1.8 SEM
05N1819	Waitrose West Byfleet KY14 6NE	12/09/2005	Waitrose	Greek Honey	Greece	Aug-06	Negative	
05N1820	Crockford Bridge Farm Shop Addlestone KT15 2BU	12/09/2005	Crockford Bridge Fruit Farm	Fruit Farm Honey	England	31/12/2008	Negative	

Customer Sample Number	Retailer Name and Address	Date of Purchase	Brand	Type of Honey	Country of Origin	Best Before Date	Overall Sample Result	Value at or above *MRPL/RL (µg/kg)
05N1821	Sainsburys Ipswich IP3 8TQ	19/09/2005	Rowse	New Zealand Clover Organic Honey	New Zealand	Sep-06	Negative	
05N1822	Sainsburys Ipswich IP3 8TQ	19/09/2005	Rowse	New Zealand Forest Organic Honey	New Zealand	Oct-06	Negative	
05N1823	Sainsburys Ipswich IP3 8TQ	19/09/2005	Sainsburys	Canadian Clover Honey	Canada	Jan-07	Negative	
05N1824	Morrisons Ipswich IP1 5AS	19/09/2005	Capilano	Pure Australian Honey	Australia	01/03/2007	Negative	
05N1825	Co-op Ipswich IP22 1DY	19/09/2005	Rowse	Traditional English Set Honey	England	Sep-06	Negative	
05N1826	Sainsburys Southampton SO30 2UH	19/09/2005	Sainsburys	Clear Organic Honey	Argentina	Jun-06	Positive	2.4 SEM
05N1827	Sainsburys Southampton SO30 2UH	19/09/2005	Sainsburys Taste the Difference	Mexican Honey	Mexico	Dec-06	Negative	
05N1828	Asda Southampton SO53 3YJ	19/09/2005	Asda	Squeezable Clear Honey	France	Jul-07	Negative	
05N1829	Asda Southampton SO53 3YJ	19/09/2005	Asda	Clear Honey	United Kingdom	Feb-07	Negative	
05N1830	Lidl Southampton SO50 4HD	19/09/2005	Maribel Mel	Clear Honey	America	May-07	Negative	
05N1831	Tesco Glasgow G53 6QR	27/09/2005	Rowse	Tasmanian Leatherwood Honey	Tasmania	Jan-07	Negative	

Customer Sample Number	Retailer Name and Address	Date of Purchase	Brand	Type of Honey	Country of Origin	Best Before Date	Overall Sample Result	Value at or above *MRPL/RL (µg/kg)
05N1832	Tesco Glasgow G53 6QR	27/09/2005	BHC (Honey Suppliers) Ltd	Honey from the Scottish Lowlands	Scotland	Jun-06	Negative	
05N1834	Morrisons Glasgow G74 1LZ	27/09/2005	Morrisons	Pure Mexican Wildflower Honey	Mexico	Mar-06	Negative	
05N1835	Holland & Barrett Glasgow G74 1LZ	27/09/2005	Holland and Barrett	Organic New Zealand Clover Honey	New Zealand	Jan-07	Negative	
05N1969	Iceland Glasgow G41 3NN	27/09/2005	Gales	Pure Honey	Blend of EC & non EC Honey	Feb-07	Negative	
05N1836	Tesco Ilford IG6 1HY	26/09/2005	Beehive	Soft and Smooth Honey	Blend of EC & non EC Honey	Mar-07	Negative	
05N1837	Tesco Ilford IG6 1HY	26/09/2005	Beehive	Strong Woodland Honey	Blend of EC & non EC Honey	Jul-07	Negative	
05N1838	Morrisons Ilford E4 8SA	27/09/2005	Rowse	Pure Natural Blossom Clear Honey	Blend of EC & non EC Honey	Feb-07	Negative	
05N1839	Morrisons Ilford E4 8SA	27/09/2005	Rowse	Pure Natural Blossom Set Honey	Blend of EC & non EC Honey	Jan-07	Negative	
05N1840	Lidl Ilford IG1 1NJ	27/09/2005	Maribel	Mel Pure Clear Honey	Non EU - South/Middle USA	03/06/2007	Negative	

**Honey Brand Name Survey: Response from Waitrose**

“As with all batches of Waitrose honey this consignment was tested for the presence of veterinary medicine residues including nitrofurans and was found to be clear.

There is no doubt that the semicarbazide detected does not come from the use of banned nitrofurans but as a result of migration from the sealant used in the cap.

This is a well-known issue on all jarred products widely publicised a couple of years ago. It has since been resolved by the packaging industry, but this jar predated the change to new sealing material.

This is not a veterinary residue; it is a well-known packaging migrant. Our view is that it would be misleading and not in the public interest to report this in a VMD survey”.

### Action taken by the FSA regarding SEM found in honey

When the FSA is notified of a confirmed result for a finding of SEM in jarred honey by the VMD, the Agency promptly establishes an audit trail via the retailer and supplier/producer. The Agency requests the SEM testing data from the imported bulk honey from which the honey in jars was derived.

On receipt of this data, the Agency ensures that the audit trail is sufficient to establish a clear link between the honey in jars and the bulk honey consignments from which they were derived. The Agency also ensures that the testing methods used for the bulk honey testing were reliable.

Once these conditions have been satisfied, if there is SEM in the bulk honey then appropriate action is taken, as this is seen as a very strong indication of the illegal use of nitrofurans. If the testing results show SEM present at or above the Minimum Required Performance Level (MRPL) in the bulk honey, then the Agency actions a product withdrawal and raises a notification under the RASFF (Rapid Alert System for Food and Feed) for the attention of the Commission and Member States. If SEM is present in the bulk honey below the MRPL, the Commission is informed via the RASFF and they usually issue an alert for information only. In either of these cases, the supply chain information is sent to the VMD and the FSA and the Chief Veterinary Officer then writes to the country of origin from which the affected honey originated.

If SEM is not found in the bulk sample, but is found in the honey sample in jars, then the Agency concludes that the SEM has most likely derived from leaching from azodicarbonamide 'blown' jar gaskets. This possible route for the contamination of jarred foods was first acknowledged by the European Food Safety Authority (EFSA) in 2003 and EFSA published its latest report on SEM in foods on 21 June 2005. In this they conclude that new information about SEM shows that it is not a concern for human health at levels found in food.

[http://www.efsa.eu.int/science/afc/afc\\_opinions/1005/afc\\_op\\_ej219\\_semicarbazide\\_en2.pdf](http://www.efsa.eu.int/science/afc/afc_opinions/1005/afc_op_ej219_semicarbazide_en2.pdf)

If the Agency is satisfied that it is unlikely that SEM in the jarred honey has derived from use of a banned nitrofurantoin drug, the Agency does not ask for a product withdrawal and a RASFF is not raised.

Regarding the general issue of SEM in jarred foods the FSA has followed closely the advice and work of EFSA and has regularly issued advice that can be found on the Agency website <http://www.food.gov.uk/> The latest advice can be found on <http://www.food.gov.uk/news/pressreleases/2005/jul/efsasemipress>