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## **1. Austria**

### **1.1. Organisation of monitoring programmes and Sampling**

The national pesticide monitoring is done according to a nation-wide sampling plan designed by the Austrian Agency for Health and Food Safety, Area Data, Statistics and Risk Assessment in co-operation with the Federal Minister of Health and Women. The plan was based on data concerning dietary consumption, production and import of fruits and vegetables and results of former measurements. Furthermore the results of earlier monitoring-programs, the analytical possibilities and the budgetary situation were taken into account, too. The co-ordinated programme of the European Commission was of course also done.

The samples were taken by trained officials from the local Food Inspection Service („Lebensmittelaufsicht“).

### **1.2. Quality assurance**

The analysis of the co-ordinated programme, the national monitoring programme and routine samples also were made by two laboratories for food control (Austrian Agency for Health and Food Safety, Institute for Food Control, Vienna and Institute for Food Control, Innsbruck together with the there located competence-centers for pesticide-analyses). One Laboratory in Vienna (Regional Institute for Food Control in Vienna) and Graz (Austrian Agency for Health and Food Safety, Institute for Food Control, Graz) analysed routine samples.

The analytical methods were adopted from published methods of the Dutch federal laboratories („Analytical Methods for Pesticide Residues in Foodstuffs“, 6th Ed., General Inspectorate for Health Protection, Ministry of Public Health, Welfare and Sport, The Netherlands) and validated in the laboratories. The fruits and vegetables were analysed up to a maximum of 262 pesticides. The methods used were a GC multimethod with ECD-, NPD- and FPD-detection. GC/MS-methods are primarily applied for confirmation purposes of the other GC methods. In addition the methodology of LC/MS was established 2006.

All laboratories involved in the co-ordinated programme and the national monitoring programme including the routine samples got the accreditation in the year 1998.

### **1.3. Other information**

Due to the fact, that there were some commodities for the national programme isolated, of which higher risk for residues was identified in the last years, these specific data are representative for the Austrian market, but the monitoring has to be seen partially as „targeted monitoring“. It was the aim, to reflect to the results of the last years and to choose special commodities of interest for further examination. This type of monitoring is foreseen for the next years.

Furthermore the routine sampling includes special samples, of which European alerts were given, too and thus the number of exceedance is higher than by doing statistical based sampling over all commodities and time of the year.

## **2. Belgium**

### **2.1. Organisation of monitoring programmes and Sampling**

#### **2.1.1. Responsibilities**

The Federal Agency for the Safety of the Food Chain (FASFC), under the responsibility of the Minister of Agriculture, is the competent authority for the control of pesticides residues in foodstuffs (<http://www.afsca.be>)

#### **2.1.2. Drafting of the monitoring plan**

The monitoring programme does not provide for a total random analysis, but is based on risk assessment. Several factors were taken into account: the exceeding in previous years in Belgium and in other Member States, the RASFF messages, the toxicity of pesticides, the importance of the foodstuffs in diets, the analytical and budgetary possibilities and all other useful information. All groups of fruits and vegetables are included in the programme and a rolling programme is applied for less important commodities. The coordinated programme of the European Commission was also included in the national programme.

#### **2.1.3. Sampling**

Samples were taken by trained officers according to Directive 2002/63/EG, mainly at auctions, importers, wholesalers and processors.

#### **2.1.4. Measures taken**

In case of infringement, the responsible company/person is identified. When the exceeding of MRL is within the analytical uncertainty, a warning is issued. When the exceeding is higher, an official report is made and sent to the responsible company/person and also to the legal department of the FASFC. The legal department proposes a fine. If the fine is not paid, or in case of repeated offences, the matter is taken to court. When the dietary intake calculations indicate a risk for the consumer (estimated in accordance with document SANCO/3346/2001) a national and an international rapid alert (RASFF) are issued and measures are taken to protect consumers (tracing and recall of the foodstuffs for destruction). In 2007, 8 RASFF were issued.

### **2.2. Quality insurance**

Four officially recognised laboratories were involved in the monitoring programme 2007. They are all ISO 17025 accredited for the most important analytical methods and commodities. Multiresidue methods as well as specific individual methods were performed on the samples. All certificates of accreditation can be found on the website of the Belgian Organisation for Accreditation (<http://belac.be/>). The laboratories take into account EU Quality control procedures (ref. SANCO/10232/2006).

Laboratories participated in the European Commission's Proficiency Tests 9.

### **3. Bulgaria**

#### **3.1. Organisation of monitoring programmes and Sampling**

##### **3.1.1. Responsibilities**

Ministry of Health (MH) is the competent authority in the country for control of pesticide residues in foodstuffs of non animal origin and provides the national and EU co-ordinated monitoring programmes. Regional inspections of public health protection and control /RIPHPC/ are regional authority responsible for controls of pesticide residues.

##### **3.1.2. Design of Programmes**

The National pesticide residues monitoring program in fruits, vegetables, cereals and baby foods is prepared annually by the Ministry of Health. The elaborated program settles number of samples for whole country and sample distribution by RIPHPC. The Ministry of Health also determines the selected pesticide/commodity combinations.

The annual plan is designed taking into account the following factors:

- the current consumption data for Bulgarian population;
- priority given to commodities eaten as fresh products;
- the capacity and technical opportunity of the laboratories.

##### **3.1.3. Sampling**

Sampling is performed in accordance with official procedures referred to in Commission Directive No. 2002/63/EC that has been transposed into the national legislation.

Food samples are collected by authorized for this purpose trained employees of the RIPHPC, i.e. trained inspectors of regional inspectorates. The main sampling points are importers, wholesalers and retail shops for domestic and non-domestic products.

##### **3.1.4. Enforcement action**

The laboratories submit the laboratory protocol with the results of analysis to the health inspectors in charge. They are responsible for the evaluation of the analysis results. Where MRLs are exceeded, enforcement action may be taken by the RIPHPC - the trade of the product is prohibited, retailers and consumers are informed and procedures are put in place for product withdrawal and recall.

#### **3.2. Quality assurance**

Status of accreditation of laboratories; number of laboratories

All 6 laboratories in RIPHPC, which are involved in pesticide monitoring, are in procedure for accreditation under ISO/IEC 17025 standard.



### **3.2.1. Analytical methods used**

The laboratories uses EN 12393 - 1,2,3 (Non-fatty foods – Multiresidue methods for the gas chromatographic determination of pesticide residues) for analysis of pesticide residues in fruits, vegetables, cereals, processed products and baby food with GC-MS and GC-ECD determination of main part of pesticides.

A brief description of method is given below:

Extraction with acetone, liquid-liquid partition with dichloromethane and clean-up on a silica gel/charcoal column. The chopped test portion is homogenized in acetone and the homogenate is filtered. An aliquot portion of the filtrate is diluted with water and extracted with dichloromethane. The organic phase is concentrated and chromatographed on a column of silica gel and activated charcoal. The pesticide residues are eluted with a mixture of dichloromethane, toluene and acetone. The eluate is concentrated for examination by GC.

A single residue method (with UV spectrometer) was used for determination of Benomyl (sum of Benomyl and Carbendazim, expressed as Carbendazim)

### **3.2.2. Participation in proficiency tests**

During the year 2007 the laboratories did not take part in proficiency tests.

### **3.2.3. Implementation of EU quality control procedures**

The EC guidelines SANCO/10232/2006 "Quality Control Procedures for Pesticide Residue Analysis", 2006 have been implemented as far as practicable (see Table G).

### **3.2.4. Analytical uncertainty**

The analytical uncertainty of the results is calculated based on relative standard deviation of recovery rates and results of proficiency testing if available. If the analytical results, without correction are mathematically above the MRL, the sample is defined as an exceeding. However, before any enforcement action is taken the analytical uncertainty is subtracted from the measured value. If the corrected analytical results still exceed the MRL, enforcement actions could be taken.

## **3.3. Other information**

### **3.3.1. Background on legislation**

Bulgaria has implemented all EC-MRLs.

## 4. Cyprus

### 4.1. Organisation of monitoring programmes and Sampling

Ministry of Health is the competent authority for the enforcement of the Pesticide Residues (PR) Legislation and the execution of the national monitoring and surveillance programs. The enforcement of Legislation and sampling is allocated to the Department of Medical and Public Health Services (MPHS). The Pesticide Residue Lab (PR-SGL) of the State General Laboratory is the Official Laboratory for the Monitoring & Surveillance of PR in Food of Plant and Animal Origin. The PR-SGL Lab and the MPHS design and implement a multisectoral program for local market, including imports and exports. The sampling regime is based on a combination of “at random” sampling and target oriented sampling focusing towards problematic pesticides/food combination. This combination is in a way bias towards problematic products and might end up with higher violation rates. Nevertheless it can provide higher degree of consumer protection and cost-effectiveness. Main criteria used in the sampling design are: violations from previous years, pattern of actual pesticide usage, info from RASFF, toxicological data, consumption data especially by children and the needs of exports control. Sampling is done by 72 well qualified Health Inspectors (with BSc or at least 3 years of education in the Public Health inspectors School of Cyprus) of the MPHS, according to the harmonized Regulation ΚΑΠ 473/2004. It is focused at the key points of food chain: producers, market, import, processing, primary storage etc. The MPHS exercise the regulatory functions. Enforcement actions are taken as follows: a) for all critical and violating samples a notification is issued to the Dept. of Agriculture, b) “Violating” samples, for which adequate evidence be provided, are legally prosecuted by the Dept. of MPHS. Every effort is made to withdraw violating products from the market and prevent them from been exported/consumed. Imported products non complying with the EU harmonized MRLs are not permitted to enter Cyprus. In our legislation there is a provision which allows to use 0.01 mg/Kg in cases where specific limits are not provided either in the EU or other national legislation. The action taken, when samples found to exceed this low level, follows a defined procedure which considers the particular problem, the LOQ and the related uncertainties.-The action taken, when samples found to exceed level of 0,01mg/kg, follows a defined procedure which considers the particular problem, the LOQ and the related uncertainties.

### 4.2. Quality assurance

The PR Lab of the SGL is accredited by the Greek Accreditation body ESYD since 2002 according to EN 45001, from June 2003 according to ISO/IEC 17025 and from July 2006 according to ISO/IEC 17025/2005. The following validated methods are mainly used: 1) “Multiresidue method for fruits, vegetables and milk including PCBs in milk”: Ethyl acetate extraction, GPC-clean up, determination/confirmation by GCMS/ITD, GC/PFPD, GC/ECD and LC/MS/MS. It covers GC and LC amendable Pesticides within polarity ranging from  $Kow = -0,9$  up to non polar. 2) GC/FPD-S determination of dithiocarbamates as CS<sub>2</sub> extracted in isooctane after reaction with aqueous hydrochloric acid in the presence of tin (II) chloride 3) “Multiresidue method for the determination of organochlorine and PCBs in fish and meat products”: Soxhlet extraction, GPC clean up, GC/ECD–dual column detection.. The analytical uncertainty has been estimated during validation process at different concentration levels and is taken into consideration

for “decision-making” especially to discriminate between “real legal violations” and “above MRLs”.

The validation of LC/MS/MS analytical system has been extended and the number of pesticides analyzed by LC/MS/MS in 2007 has been increased to 81.

The PR-Lab applies Quality Control procedures, which are in line with the provisions of "EU-Quality control procedures" concerning the determination, confirmation and method quality. The lab participated in the European Commissions Proficiency Test on Pesticide Residues EUPT-FV-LC and EUPT-FV-09 as well as in the FAPAS PT0552 for organochlorine pesticides and PCBs in minced fish. The Results of all the PTs were acceptable with z-scores < 2.

### **4.3. Other information**

#### **4.3.1. Background on legislation**

The main legal instrument for the protection of Public Health in Cyprus is the Harmonized Food (Control and Sale) Law of 1996-2006, and the EU harmonized Pesticide Residues and sampling Regulations.

#### **4.3.2. The management of results**

To increase the cost-effectiveness, the use of the term “critical” sample has been introduced since 2002. Critical are those samples which are either above the MRL but when the uncertainty is subtracted cannot be considered as legal violation or are at or below the MRL and when uncertainty is added MRL is exceeded. The samples are ranked in the following categories: ‘without detectable residues’, with residues below or at MRL’, “above the MRLs” “critical” and “violating samples”. Therefore the % of above MRLs recorded in all Tables comprises the legal violations and part of the critical samples. Decision on actions are taken according to a standardized documented SOP process and in compliance with the legislation.

#### **4.3.3. Risk Assessment**

For samples containing pesticides, which exceeded MRL, the PSTI values were estimated according to Sanco Document SANCO/3346/2001rev6 (Proposal on notification criteria for pesticide residue findings to the Rapid Alert System for Food and Feed’ (RASFF) .

## **5. Czech Republic**

### **5.1. Organisation of Monitoring programmes and Sampling**

#### **5.1.1. Responsibilities**

Czech Agriculture and Food Inspection Authority (CAFIA) is the competent authority for controls of pesticide residues in foodstuffs and provides the national and EU co-ordinated monitoring programmes in co-operation with the Ministry of Agriculture.

#### **5.1.2. Design of Programmes**

The sampling plan for pesticide residues monitoring is always drawn up for one calendar year. The plan is elaborated by the Headquarters of CAFIA as internal provision and it is distributed to the CAFIA regional inspectorates which are responsible for its implementation. The plan is based on Commission Recommendation concerning a coordinated Community monitoring programme which sets the minimum number of samples for the Czech Republic. Within the monitoring of pesticide residues, the Czech Republic analyses approximately 800 samples per year. Within pesticide residue monitoring, especially commodities mainly presented in the consumer basket are collected. In selection of commodities for the monitoring a number of findings in the past (in the Czech Republic and other member states) is also taken into account. Fresh fruit and vegetables and baby food comprise the primary proportion of samples taken.

#### **5.1.3. Sampling**

Sampling is performed in accordance with sampling procedures referred to in Commission Directive No. 2002/63/EC that has been incorporated into the national regulation for sampling for determination of pesticides in and on fruit and vegetables.

Samples are taken by authorised and for this purpose trained employees of the CAFIA, i.e. inspectors of the CAFIA regional inspectorates. The main sampling points are importers, wholesalers and retail shops for domestic and non-domestic products.

#### **5.1.4. Enforcement**

A ban on sale/distribution of inspected foodstuffs is imposed when exceeding the MRL or it is ordered to withdraw unsatisfactory foodstuffs from circulation. Furthermore, the person inspected is ordered to take such measures that minimise the risk of further occurrence of limit-exceeding findings. A fine is imposed on the inspected person within administrative procedure. When determining its amount the importance, manners, duration and consequences of illegal act are taken into consideration.

### **5.2. Quality assurance**

#### **5.2.1. Accreditation**

All analyses were carried out in the laboratory of Czech Agriculture and Food Inspection Authority (CAFIA) in Prague. Laboratory is accredited by Czech Accreditation Institute

(CAI) according to the ISO/IEC 17025 standard for all methods used for monitoring and/or enforcement analysis.

### **5.2.2. Analytical methods**

Pesticide residues reported by the laboratory in the year 2007 have been analysed by 5 analytical methods which covered together 184 analytes (incl. metabolites) – 2 multi-residue methods (first MRM have been based on ethyl acetate extraction, GPC clean-up and capillary gas chromatography (GC-ECD/NPD/MSD), second MRM have been based on acetonitrile extraction followed by LC-MS/MS - liquid chromatography coupled with triple quadrupole) and 3 single-methods (GC-MSD for dithiocarbamates, GC-ECD for inorganic bromine and LC-MS/MS for chlormequat).

### **5.2.3. Proficiency testing**

During the year 2007 the laboratory took part in 4 proficiency tests focused on pesticide residues – in three EUPT rounds (EUPT FV 09, EUPT FV LC1 and EUPT AO 02) and in one national test organised by CAFIA for laboratories in Czech Republic.

### **5.2.4. EU Quality Control procedures**

Although most of requirements from the EU quality control guidelines (Document N° SANCO/10232/2006) have been fully implemented some of them are still fulfilled only partly. Improvement of QC procedures has been achieved since the year 2006 and the process will continue also in the future.

### **5.2.5. Uncertainty**

A concentration-dependent uncertainty concept based on the Horwitz equation was applied for uncertainty estimation in the year 2007. For calculation of expanded uncertainty (U), the  $RSD_R$  obtained from the equation was multiplied by a factor of 1.4, which was derived from laboratory experiments, validation and QC data. Since the end of the year 2007 the harmonised “50% uncertainty” approach recommended in the SANCO guidelines has been applied.

## **5.3. Other information**

### **5.3.1. Risk assessment**

Health risk assessment is in the Czech Republic performed by the Ministry of Health. Non-complying samples are ceded to the MH and if they are relevant for transmission via RASFF (Rapid Alert System for Food and Feed), they are notified. In 2007, we notified 2 findings of pesticide residues but as it concerned the baby food, those samples were not ceded to the MH for risk assessment because there was no need to assess the risk.

2007.0475 - CYPRODINIL, FLUDIOXONIL AND FENHEXAMID IN FRUIT PUREE WITH STRAWBERRIES FOR INFANTS FROM THE CZECH REPUBLIC  
2007.0782 - FENHEXAMID IN FRUIT PUREE WITH STRAWBERRIES FOR INFANTS FROM THE CZECH REPUBLIC, RAW MATERIAL FROM SPAIN AND THE CZECH REPUBLIC .

There was one case of pesticide residues notified in 2007 as well (2007.ACW -- Procymidone in fresh spinach from France) but the sample was already taken in 2006.

## **6. Denmark**

### **6.1. Organisation of Monitoring programmes and Sampling**

Pesticide monitoring in Denmark were in 2007 the responsibility of the Danish Veterinary and Food Administration under the Ministry of Family and Consumer Affairs. The National Food Institute, Technical University of Denmark, designed the monitoring programme and consolidated the collected data in cooperation with the Danish Veterinary and Food Administration. The Regional Veterinary and Food Control Authorities were responsible for implementing the sampling plans and for enforcement actions.

The sampling plan was based on dietary consumption pattern with regard to pesticide intake from a previous report [1], which analysed monitoring data from 1998-2003. This report showed that 25 commodities were responsible for more than 98% of the intake of pesticide residues. These commodities were included in the sampling plan along with commodities suggested by the commission (monitoring plan 2007). Furthermore, about 100 samples were left open for the sampling authorities to sample the “left over” commodities on the Danish market. Sampling fewer commodities but more samples of the single commodity will provide a better basis for comparison between years, so that trends in pesticide residues found may be analysed. All samples included in the centrally coordinated monitoring in 2007 were designed as surveillance samples. In addition to this, 47 samples were taken at retailers where previous violations of the MRL have occurred or based on pesticide residue violations found in the control performed by other EU MS and reported through the Rapid Alert System for Food and Feed (RASFF).

Samples were taken by authorised personnel from the 10 Danish Regional Veterinary and Food Control Authorities. Directive 2002/63/EC on sampling procedures for control of pesticide residues is implemented in Danish legislation.

### **6.2. Quality assurance**

The analytical methods have been developed and validated by the National Food Institute, Technical University of Denmark. All samples were analysed at the laboratory of the Regional Veterinary and Food Control in Ringsted. The control laboratory is accredited for pesticide analysis in compliance with EN45001/ISO17025 by the Danish body of accreditation, DANAK (certificate numbers 315 and 350). Furthermore, the laboratory participated in the relevant FAPAS performance verification scheme and in the EU-proficiency tests.

All samples of fruit and vegetables were analysed for about 200 pesticides, including isomers and metabolites. In addition, part of the samples were analysed for dithiocarbamates. Due to the methodology applied it was not possible to distinguish between the dithiocarbamates included in the MRL definition and other dithiocarbamates for which no MRL has been fixed. Thus, it was not possible to report confirmed exceedances for the dithiocarbamates.

All cereal samples were analysed for 124 pesticides, including isomers and metabolites.

"Guidelines concerning Quality Control Procedures for Pesticide Residue Analysis" has been applied for all methods. Mass selective confirmation was performed for part of the GC multi methods and for the LC/MS-MS methods for fruit and vegetables. Analytical

uncertainty is not applied in monitoring reports, but is always applied in case of enforcement actions.

### **6.3. Other information**

Residues without maximum residue limits and residues with acute reference doses were individually evaluated by toxicologists at the National Food Institute, Technical University of Denmark. Residues of pesticides with a low acute reference dose were detected in 5 samples of fruit and vegetables in quantities that could lead to an exceedance of the ARfD. Three of these residues were found in samples of fruit; i.e. a sample of apple (France), papaya (Ecuador) and melon (Ecuador). These residues resulted in a calculated acute intake of 186%, 175% and 426% of the ARfD for children. Residues of oxamyl was found in a sample of courgette from Spain resulted in a possible acute intake for adults and children of 255% and 955% of the ARfD, respectively. Residues of oxamyl in a tomato sample from Denmark resulted in a calculated possible acute intake for children of 153% of the ARfD. The samples were all evaluated by the toxicologists, who concluded that the exceedances of the ARfDs are unacceptable but are not expected to result in toxicological effect.

### **REFERENCES**

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## **7. Estonia**

### **7.1. Organisation of Monitoring programmes and Sampling**

#### **7.1.1. Responsibilities**

In 2007, the Veterinary and Food Board (VFB) of the Ministry of Agriculture and the Health Protection Inspectorate (HPI) of the Ministry of Social Affairs were the Competent Authority for the control on plant protection products residues in foodstuffs of plant origin, including baby-food and processed products.

#### **7.1.2. Design of Programmes (priorities, targeting, criteria for the percentage of samples to be taken from the organic sector)**

From the year 2007 VFB is responsible for drawing up the national control programme. The monitoring plan of HPI specified the number and type of samples to be taken at retail level and monitoring plan of VFB specified the number and type of samples to be taken at wholesale level in different regions. Results of samples taken for pesticide use surveillance by Plant Protection Inspectorate (PPI) at farm level are also included in the report. The control programme is based on the results of the previous year sampling activities, the results of the annual monitoring for the plant protection products residues in fruit and vegetables, the main food groups consumed in Estonia and on the Rapid Alert Systems in place.

#### **7.1.3. Sampling: personnel, procedures, sampling points**

Sampling was done by trained officials inspectors according to Directive 2002/63/EC.

HPI employees (inspectors) in their two laboratories buy samples at retail shops. The cost of the samples is covered by the Ministry of Agriculture.

VFB inspectors of the county veterinary centres carry out sampling for residues of foodstuffs of plant origin in the context of food control activity according to the provisions of the law and by the monitoring plan. Samples are taken from domestic and non-domestic commodities of plant origin at wholesale level.

The number of samples from the organic sector are taken by the inspectors of the county centres of the PPI.

#### **7.1.4. Enforcement action**

The laboratories do not compare the results of analysis with the MRL, only submit the laboratory certificate to the inspector in charge. The evaluation of the analysis results is the responsibility of the inspector. Where MRLs are exceeded, enforcement action may be taken by the inspector of HPI and VFB – the marketing of the product is prohibited, retailers and consumers are informed and procedures are put in place for product recall.

## **7.2. Quality assurance**

### **7.2.1. Status of accreditation of laboratories ; number of laboratories**

Two laboratories of the HPI (Tallinn and Tartu) and one laboratory of the ARC (Laboratory for Residues and Contaminants in Saku) participated in the monitoring programme (Table G) and they are accredited by the Estonian Accreditation Centre (EAK) for all analytical methods used for official control of pesticide residues in food of plant origin. All certificates of the accreditation can be found on the website of the Estonian Accreditation Centre (<http://www.eak.ee>)

### **7.2.2. Analytical methods used**

The laboratories used multi-residue method EN 12393 – 1,2,3 for analysis of pesticide residues in fruit, vegetables, cereals, processed products and baby food with GC-ECD/NPD, GC-MS and LC-MS/MS determination. A single residue method was used for determination of dithiocarbamates (maneb-group) in all three laboratories. HPI laboratories used single residue methods also for benomyl and thiabendazole determination but their methods were different.

### **7.2.3. Participation in proficiency tests**

One laboratory participated in the European Commission's Proficiency Test with good results (Category A) and in 2007 all three laboratories have participated in the proficiency tests organised by FAPAS (see Table G).

### **7.2.4. Implementation of EU quality control procedures**

The EC guidelines SANCO/10232/2006 “Quality Control Procedures for Pesticide Residue Analysis”, have been implemented as far as practicable (see Table G).

### **7.2.5. Analytical uncertainty**

The analytical uncertainty of the results is calculated based on relative standard deviation of recovery rates and results of proficiency testing if available. The sample was defined as an exceeding if the analytical results with correction by analytical uncertainty were above the MRL. In these cases also enforcement actions were taken.

## **7.3. Other information**

### **7.3.1. Background on legislation**

Estonia has implemented all EC-MRLs. For some other pesticide/commodity combinations national limits are in force (mostly for cereals).

## **8. Finland**

### **8.1. Organisation of the monitoring programmes and sampling**

#### **8.1.1. Responsibilities**

Finnish Food Safety Authority Evira is the central competent authority for the control of pesticide residues and planning of the monitoring programme. The control of non-domestic foodstuffs has been assigned to Customs administration while municipalities and Evira are responsible for the control of domestic products. The control of pesticide residues in alcoholic beverages is the responsibility of National Product Agency for Welfare and Health (STTV). The city of Helsinki is participating into the programme by collecting and analysing samples from the market area of Helsinki. Samples are both domestic and non-domestic.

#### **8.1.2. Design of the programmes**

The annual monitoring programme is worked out in co-ordination under Evira, and it provides a sampling plan for the residue control of fruit and vegetables, cereals, processed products of plant origin, baby-food and organic products including the commodities and pesticides required in the EU co-ordinated programme. Control is designed to cover all important dietary commodities. The sampling frequency of different commodities is determined taking in to consideration food consumption figures and the results of previous monitoring programmes. Priorities are also set according to known residue problems. The number of organic samples is reflecting the share of organic production area in Finland (6.5 %). A special survey of residues in processed potatoes (potato flakes, French fries), wines and beer was carried out.

#### **8.1.3. Sampling: personnel, procedures, sampling points**

Domestic samples are collected by local health inspectors from wholesalers, packing companies, retail shops or farms according to the annual sampling plan and guide prepared by Evira. The samples of non-domestic foodstuffs are collected by customs inspectors from wholesalers. Samples of alcoholic beverages are collected by inspectors of the STTV. Inspectors have theoretical and practical training in sampling organised by Evira, the Customs or the STTV. The sampling directive 2002/63/EEC is followed.

#### **8.1.4. Enforcement**

For surveillance samples exceeding the MRL, the holder of the product is requested to prevent further distribution and selling of the lot. On subsequent lots of the same origin, follow-up samples are taken (enforcement samples). In case of enforcement sampling, the lots are detained for the duration of the investigation, and lots confirmed to exceed the MRLs are to be destroyed. Under certain conditions and by permission of the authorities, a non-complying lot may be returned to the seller or to a third country or rendered compliant to regulations (e.g. aeration to decrease the level of fumigant residues).

## **8.2. Quality assurance**

### **8.2.1. Status of accreditation of laboratories; number of laboratories**

The analyses were carried out in two accredited (FINAS) laboratories: Finnish Customs Laboratory (94 % of samples) and Environmental Laboratory of the City of Helsinki (6 % of samples). Since 1.1.2008 the Environmental Laboratory of the City of Helsinki have change their name to MetropoliLab. Both laboratories have accreditation according to ISO17025 for the main analytical methods but some single residue methods are not accredited.

### **8.2.2. Analytical methods used**

Virtually all samples were analysed by the multiresidue methods. Customs laboratory is using the acetonitrile extraction method (QuEChERS) while Helsinki City laboratory is using acetone extraction (Luke method). Gas chromatographic analysis of the extracts is based on detection by GCEC, GCNP or GCMS. About two thirds of the sample extracts were analysed by LCMSMS as well. The number of pesticides monitored for by the multiresidue method is 246 in Customs laboratory and 74 in the Helsinki City laboratory. In addition, chlormequat, inorganic bromides, hydrogen phosphide and dithiocarbamates were analysed from selected samples in the Customs Laboratory.

### **8.2.3. Participation in proficiency tests**

Both laboratories participated in the proficiency test organised by EU (FV9). Customs Laboratory participated also in the other EU proficiency test: multiresidue low concentration (FVLC1), cereals (C1) and single residues (SRM2).

### **8.2.4. Implementation of EU quality control procedures**

The EU quality control guidelines (SANCO/10232/2006) have been implemented in both laboratories, albeit only partly for some elements.

### **8.2.5. Analytical uncertainty**

The analytical uncertainty is determined from the daily quality control samples. Two times relative standard deviation is used as the measure of uncertainty. All results even slightly above the MRLs are defined in this report as exceedances, however, enforcement action is taken only if the result, subtracted by the uncertainty value, still exceeds the MRL.

## **8.3. Other information**

Possible health risk in case of MRL exceedance was estimated using the UK short term intake calculation model. Rasff notification was released in 4 cases where the ARfD was exceeded. Rasff notifications were sent also in 6 cases when nonauthorized pesticide (isofenphos-methyl) was detected.

## 9. France

### 9.1. Organisation of Monitoring Programmes and Sampling

The monitoring programme for plant pesticide residues was carried out by the *Direction Générale de la Concurrence, de la Consommation et de la Répression des Fraudes* (DGCCRF - General Directorate for Competition Policy, Consumer Affairs and Fraud Control). The aims of this multi-year Community programme are to:

1. monitor compliance with MRLs, and therefore compliance with reported good agricultural practices,
2. collect data to assess actual dietary exposure of consumers to pesticide residues.

This programme takes into account :

- the results of the 2006 monitoring programme,
- the requirements of the European Union coordinated programme,
- the dietary proportion of plant products,
- the specific and sometimes targeted inspections of certain fruits and vegetables (specific exercise).

Each department received a crop sampling plan. Inspections were made at every marketing level, with adjustments. The inspection of cereals grains generally took place at the storage stage, at silos, or at the processing stage, at plants. Cereal products, fruits and vegetables were sampled at retailers or wholesalers. Samplings at growers were less frequent. For all products entering the French territory, specific action was deployed at points of arrival. A priori, domestic and imported production was not broken down, although a 70/30 ratio has prevailed for several years.

Inspectors carried out crop sampling by following the updated monitoring programme. Quantities to be sampled and procedures for are in accordance with Directive 2002/63 provisions.

In 2007, the French targeted programme focused on carrots, lemons, cucumbers, witloofs, lettuces, tomatoes, peaches and mandarins.

### 9.2. Quality Assurance

In 2007, seven DGCCRF laboratories took part in the monitoring programme and targeted surveillance programme. Six of them are COFRAC accredited and for the remaining one, the step for accreditation is on hand. All laboratories apply the “guidance concerning quality control procedures for pesticide residue analysis” and participate in proficiency tests organised by the European Union (EUPT) and by independent suppliers (BIPEA, FAPAS, CHEK). The Rennes laboratory drew up the summary of the results.

The laboratories used multi-residue techniques and sometimes specific adapted methods. The techniques for multi-residue analyses used solvents for extraction (acetone or ethyl acetate), then liquid-liquid partition. Relevant extracts were purified on adsorbents (Florisil or Bio-beads) or by gel permeation. Determination and quantification were performed using chromatographic techniques coupled to mass spectrometry (GC/MS

and, depending on the lab, LC/MS) Complementary informations helpful for decision could also be collected using different principles for detection such as ECD, FPD, NPD, ELCD, UV or fluorimetry. Specific methods were used for the determination of dithiocarbamates, bromides, maleic hydrazide, chlormequat and benzimidazoles and some other active substances.

Uncertainties of measurements are taken into account for the interpretation of the results on the analytical reports and the action to be taken : if the difference between the value measured in excess and the MLR remains lower than the uncertainty of measurement, the report of the laboratory indicates a conclusion “to follow” in order to warn the operator. When the product is still available on the market (or at following harvest if control takes place at the production step) a second sample is then carried out for control. Nevertheless, uncertainties are not integrated into the present statements of results to the attention of the European Union, because Excel table does not allow this nuance.

### **9.3. Other information**

In 2007, national legislation<sup>1</sup> setting MRLs on products of plant origin have been modified several times to incorporate harmonised MRLs in french law<sup>2</sup>.

Concerning the risk assessment, any non-compliance gives rise to a systematic information of the central administration (office D4 in DGCCRF) by the laboratory and transmission of information on measures taken and the destination batches in order to inform the RASFF (Rapid Alert System for Food and Feed) where appropriate.

France has placed 88 notifications of food alerts on networks in 2007.

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<sup>1</sup> “Arrêté” of 10 february 1989 (cereals) et “arrêté” of 5 august 1992 (fruits and vegetables).

<sup>2</sup> Publication in Journal officiel de la République française of modified « arrêtés » on the 26 april (commission directives 2006/92/CE, 2006/59/CE et 2006/62/CE), on the 23 october (commission directives 2007/7/CE to 2007/12/CE), on the 20 november (commission directives 2007/27/CE, 2007/28/CE and 2007/39/CE) and on the 17 december 2007 (commission directives 2007/55/CE à 2007/57/CE and 2007/62/CE).

## **10. Germany**

### **10.1. Organisation of Monitoring programmes and Sampling**

In Germany there is a difference between the Food Monitoring Programme and the official food control. Parts of the data generated in both programmes correspond with the provisions of Directives 76/895/EEC, 86/362/EEC, 90/642/EEC and the Commission Recommendation of 3 April 2007 (2007/225/EC) concerning a coordinated Community monitoring programme. Therefore, the report includes the respective data from both programmes:

- Monitoring programme 2,358 samples
- official food control 15,412 samples.

The monitoring is based on a representative collection of data. With regard to bio-statistical aspects, the samples are taken randomly according to defined sampling plans. The sampling plans to be used for this purpose are laid down every year by the Federal Government together with the Federal Laender.

In the framework of official residue control, the samples are taken in a risk-oriented manner in order to check if there are any infringements against food legislation (e.g. surpassing of MRLs). The kind and extend of the sampling are decided on by the Federal Laender. When infringements are stated, the Laender authorities apply adequate measures (follow-up examinations, fines and, if necessary, transfer of the case to public prosecution).

1712 samples of 17,770 (9.6 %) were from products produced under the rules of organic farming. In 359 (21.0 %) samples residues of pesticides could be quantified. Only 14 (0.8 %) of organic samples contained residues of pesticides exceeding MRLs. The sampling strategies for these products vary between the Laender. Some have special programs, others take samples rather by chance.

The Federal Laender are responsible for the sampling, which is carried out by correspondingly trained official inspectors according to Commission Directive 2002/63/EC.

Samples were taken on the level of producers, manufacturers, wholesalers and retailers.

### **10.2. Quality assurance**

All 38 laboratories providing data to the 'Federal Office of Consumer Protection and Food Safety, BVL' have been accredited to ISO 17025 standard and participated in proficiency tests.

Analytical methods used in the framework of food surveillance and of food monitoring comply with the requirements set out in the EU-guidelines document "Quality Control Procedures for Pesticide Residue Analysis" (SANCO/2007/3131).

The analytical uncertainty is not considered in this report. The numerical measured values of residues are compared to the MRLs, only. However, food control authorities in Germany take into account the analytical uncertainty before administrative consequences follow. In these cases they use the subsequent procedure. If measured residues indicate that maximum residue levels are exceeded, the analytical uncertainty is considered. For

food of plant origin an over-all reduction of 50% of the measured value, over all ranges of concentration, is generally applied. For food of animal origin the result is reduced by twice the theoretical standard deviation as derived from the Horwitz curve for the concentration range in question.

It is taken for sure that maximum residue levels are exceeded when measured values, reduced by the respective deviation, are still above the respective limit value.

### **10.3. Other information**

Homogeneity exercises in 2007 were carried out in 46 sweet table grapes samples (with 5 single units).



## **11. Greece**

### **11.1. Organisation of Monitoring programmes and Sampling**

The annual monitoring plan was organised by the central competent authority. The responsibilities of the laboratories involved, regarding the number of samples of each commodity that should be analysed and the areas of sampling were well defined by this program. The responsible for the EU co-ordinated program laboratories was clearly stated.

#### **11.1.1. Design of Programmes (priorities, targeting)**

The annual national monitoring plan is based on various important parameters such as the number of samples for each commodity (depending on the produce, the cultivation area and the daily dietary intake contribution of each commodity), the sampling location and the personnel and analytical capacity of each laboratory.

#### **11.1.2. Sampling: personnel, procedures, sampling points**

The responsible for sampling authorities, with the designated personnel, follow the methods of sampling (Commission Directive 2002/63/EC). Samples were taken from points of entry, wholesalers, retailers and farm gates.

#### **11.1.3. Enforcement action**

In the case of an MRL infringement, the relevant to the case enforcement actions specified by our National law are taken.

### **11.2. Quality assurance**

Status of accreditation of laboratories; number of laboratories

From the 9 laboratories involved in the pesticide monitoring program of 2007, five are accredited, whereas, the procedures for the accreditation of the rest 4 laboratories are in the final progressed stage.

#### **11.2.1. Analytical methods used**

The Dutch Manual (5th edition 1988) for gas chromatographic analysis with NPD, ECD, TSD and PFPD - Multiresidue method 5 for organophosphorus compounds, Ministry of Welfare, Netherlands, FIFTH EDITION - The proposed EU method for dithiocarbamates - A French UV method for benzimidazoles - Multiresidue analysis for N-methyl-carbamates to determine the following pesticides: Aldicarb sulfoxide (Standak), Aldicarb sulfone, Oxamyl (Vydate), Methomyl (Lannate), Aldicarb (Temik), Propoxur (Baygon), Carbofuran (Furadan), Carbaryl (Serin), Methiocarb (Mesurol). EPA Methods 5 and 531.1 and AOAC international protocol 29A05, described a direct inject method which employs gradient liquid chromatography with fluorescent detection, accomplished by post-column hydrolysis and derivatization of the eluted carbamates - For olive oil, a method developed in the one lab and published in Journal of Chromatography.

### **11.2.2. Participation in proficiency tests**

From the 9 laboratories involved in the pesticide monitoring programme 2007, seven have participated in PT09 organised by EU.

### **11.2.3. Implementation of EU quality control procedures**

The EC guidelines SANCO/10476/2003 “Quality Control Procedures for Pesticide Residue Analysis”, third edition, 2003 are followed as close as possible.

### **11.2.4. Analytical uncertainty**

The pesticide residues figures found are compared with the MRLs. However, in a case of an exceedance of the MRL, before any enforcement action is taken, the analytical uncertainty (95 % confidence interval) is subtracted from the measured value. If this figure still exceeds the MRL, enforcement action relevant to the case is taken.

## **11.3. Other information**

### **11.3.1. Details of risk assessment**

In all cases of exceedances, risk assessment for acute exposure is conducted, using the ARfD value. In the cases of pesticides that an ARfD has not been set, the ADI is used.

## **12. Hungary**

### **12.1. Organisation of Monitoring programmes and Sampling**

#### **12.1.1. Responsibilities**

Central Agricultural Office Directorate of Plant Protection, Soil Conservation and Agri-environment (CAO DPPSCA) is responsible for coordination of testing pesticide residues in unprocessed agriculture commodities, and processed food of plant origin; heavy metals and organic contaminants in soil and raw agriculture food commodities, quality control of agrochemicals, as well as for the diagnosis of pests and control of pest management technologies during production.

Raw agriculture food and feed commodities of plant origin: coordinating institute is CAO DPPSCA supervising 6 regional laboratories.

#### **12.1.2. Design of Programmes**

Selection study of the crops for the sampling was made with consideration of the consumption habits of the Hungarian population, the number of studied samples was about the same as those in the previous years.

#### **12.1.3. Sampling**

Sampling is carried out in accordance with 34/2004 order issued by Ministry of Health based on order 2002/63/EC for pesticide residues, and the original Decree 5/2002 (II.22) MARD- MH.

The programme for official sampling made by the analytical network covered mostly the produces representing the main consumption habits, but other crops were also included. Sampling points: Border Station Offices, wholesales, markets, places of production.

Personal: border and plant protection inspectors within the country.

### **12.2. Quality assurance**

#### **12.2.1. Status of accreditation of laboratories**

The laboratories work according to OECD-GLP systems, 6 laboratories have (GLP) accreditation, i.e. their procedures follow the quality assurance practice based on requirements of MSZ EN ISO 17025 standard and joint decree 31/1999 (VIII.6.) MH- MARD and 9/2001 (III.30.) MH- MARD.

#### **12.2.2. Analytical methods**

The test methods recorded in the Standard Operation Procedures (SOP) are used as they help maintaining the quality requirements. The local inspections made by quality assurance inspectors and the audits of testing plans and reports contribute to the improvement of work efficiency.

### 12.2.3. International proficiency tests

In 2007, 132 laboratories in Europe took part in the 9<sup>th</sup> European Proficiency test, including all the 6 Analytical Laboratories of the national plant protection organisation.

The Hungarian Analytical Laboratories obtained very good results.

### 12.2.4. Analytical uncertainty

Depends on the concentration of analytes.

Concentration	Repeatability		Between Laboratory Reproducibility		Trueness
	CV <sub>A</sub> %	CV <sub>L</sub> %	CV <sub>A</sub> %	CV <sub>L</sub> %	Range of mean recovery %
≤1 ug/kg	35	36	53	54	50 - 120
>1 ug/kg≤0.01 mg/kg	30	32	45	46	60 - 120
>0.01mg/kg≤0.1 mg/kg	20	22	32	34	70 - 120
>0.1 mg/kg≤1 mg/kg	15	18	23	25	70 - 110
> 1 mg/kg	10	14	16	19	70 - 110

### 12.3. Other Information

In 2007, Hungary did not carry out the homogeneity exercise.

Details of risk assessment: are carried out by Hungarian Food Safety Office (HFSO). It is the joint work of the CAO DPPSCA and HFSO.

MARD – Ministry of Agriculture and Rural Development

MH – Ministry of Health

## **13. Iceland**

### **13.1. Organisation of Monitoring programmes and Sampling**

#### **13.1.1. Responsibilities**

Responsibilities for monitoring programmes lies with Matv~lastofnun, The Icelandic Food and Veterinary Authority. The Environmental health and protection office in Reykjavik collects the samples and performs enforcement action when necessary.

#### **13.1.2. Sampling**

Sampling plan is made annually based on information on import volumes and domestic production. Experience is also taken into account, as to what pesticide residues are most often analysed in a particular product. Last but not least the co-ordinated EU programme is taken into consideration. Samples were collected according to national regulation no 73612003 on sampling methods for contaminants in foodstuffs which is based on EC directives. Samples were taken at wholesaler's warehouses in Reykjavik and occasionally at retailer's stage. Samples were taken from organic product, mostly of Icelandic origin. It was not possible to distinguish them from other samples in the data. Enforcement actions are taken if the pesticide residues are over MRL plus deviation.

### **13.2. Quality assurance**

#### **13.2.1. Status of accreditation of laboratories**

An Icelandic laboratory, Matis ohf carried out the analysis of fruit and vegetable samples. Matis ohf. achieved accreditation in May 2007, but not all pesticides measured have been validated in accordance with ISO 17025.

#### **13.2.2. Analytical methods used**

Extraction with organic solvents followed by GC-MS analysis. Dithiocarbamates are measured as CS;! with FPD sensor. Matis ohf. participates in CRL European Proficiency Test. The following parts of EU quality control procedures were followed: Sampling, transport, processing and storage of samples, pesticide standards, calibration, solutions etc., extraction and concentration, contamination and interference, analytical calibration and chromatographic integration, and proficiency testing and analysis of reference material. Analytical methods and analytical performance are only partly followed as methods were not all accredited in the year 2007. Analytical uncertainty estimation is applied on results.

## **14. Ireland**

### **14.1. Organisation of Monitoring programmes and Sampling**

The 2007 Irish monitoring programme was carried out by the Pesticide Control Service of the Department of Agriculture, Fisheries and Food. This programme was agreed at the end of 2006 following discussions between the Pesticide Control Service and the Food Safety Authority of Ireland (FSAI).

The programme was designed by taking account of the following

- the current consumption data for Irish adults (IUNA 1996-1998 survey)
- the co-ordinated EU monitoring programme for 2007
- priority given to commodities eaten in the raw state i.e. lettuce
- the capacity of the laboratory to implement the programme
- samples that gave rise to MRL breaches in 2006 are targeted
- the availability of organic produce on the market.

Samples are taken in accordance with the EU sampling Directive 2002/63/EC. Two sampling officers from the Pesticide Control Service carry out the sampling of food of plant origin. Sampling is normally taken at wholesale level but occasionally it may be carried out at retail level.

From the MRL breaches detected in 2006, 16 follow up samples were taken, one of which, a spinach sample from Ireland, had an MRL breach for chlorothalonil due possibly to spray drift.

Following RASFF alerts in 2007, 3 statutory samples were taken on pears and 1 on table grapes. No residues were detected in those samples.

### **14.2. Quality assurance**

The Pesticide Control Laboratory of the Department of Agriculture, Fisheries and Food is the only Irish laboratory involved in the official control of pesticide residues in food of plant origin. This laboratory is accredited to ISO 17025 standard. The laboratory partook in the proficiency tests organised by the CRLs and in the FAPAS proficiency schemes.

All fruit and vegetable samples were extracted using the mini Luke and QuEChERS methods. The extracts by the mini Luke method were cleaned up using gel permeation chromatography and analysed using GC-MSD for 167 pesticides, isomers and metabolites. The QuEChERS extracts were analysed by LC-MS/MS for 125 pesticides, isomers and metabolites. In the case of cereal samples a variation of the mini Luke method was used with ethyl acetate as the extracting solvent and addition of water for the GC analysis. Water was also added to the cereal samples prior to the QuEChERS extraction method for the LC-MS/MS analysis. Ethylenebisdithiocarbamates were analysed in a selected number of samples using GC-MSD to analyse for the presence of CS<sub>2</sub> in a trimethyl pentane extract following the hydrolysis of ethylenebisdithiocarbamates present.

#### **14.2.1. Participation in proficiency tests**

The Pesticide Control participated in the EU Proficiency tests which were organised by the CRLs as well as the FAPAS schemes for fruit, vegetables and cereal.

The laboratory incorporates the majority of the EU Quality procedures for pesticide residues into its work practices.

#### **14.2.2. Analytical uncertainty**

The Laboratory uses the 50% figure to take into consideration inter-laboratory variations for MRL breaches.

#### **14.3. Other information**

In all cases where an MRL breach was detected a deterministic risk assessment was carried out using the Irish consumption data for both Irish adults and children to quantify the risk to consumers.

## **15. Italy**

### **15.1. Organisation of monitoring programmes and Sampling**

#### **15.1.1. Responsibilities**

The Ministry of Work, of Health and of Social Political – General Directorate for Food Safety and Nutrition – coordinates and defines Italian official control programmes on foodstuffs, including the annual plans regarding pesticide residues.

#### **15.1.2. Structure of the plan**

The annual official control plans on residues of plant protection products are defined by Ministerial Decree 23 December 1992, transposing Directive 90/642/EEC, integrated by the Ministerial Decree 30 July 1993 regarding the programming of official controls for importation from Third Countries.

The National Program Pesticide Residues (P.N.R.A.) foresees a detailed programme implementing the checks to be carried out by the Regions and Autonomous Provinces of Trento and Bolzano, with indication of the minimum number and the typology of samples to be analysed. The division of the number of samples to be taken for each Region/Province is calculated according to the data on consumption and production of a given foodstuffs in the Region or autonomous Province concerned. The Decree contains some tables reporting the number of samples to be taken for each Region/Province for the following foodstuffs: vegetables, fruits, cereals, wine, oils, meat, milks and derivatives, eggs. The plan foresees also priority of a research of residues of plant protection products both in animal and vegetable origin foodstuffs.

As regards products of vegetable origin imported from Third Countries, the sampling is performed by Uffici di Sanità Marittima, Aerea e di Frontiera (USMAF) of Ministry of Health, in at least 3% of a lot present at importation with a priority given to fruit and vegetable origin products.

#### **15.1.3. Sampling, staff, procedures and sampling spots**

Based on the programmes of the Regions and Autonomous Province, inspectors of a Local Health Units provides for implementation of sampling of foodstuffs to be tested for PPP residues.

The sampling spots indicated in P.N.R.A concerning products of plant origin are the collection centers and cooperatives for products coming from within the Region or Autonomous Province, specialised and non-specialised wholesale markets, wholesale stores, hypermarkets and supermarkets for products coming from outside the Region or Autonomous Province.

The sampling methods are those established by the Decree of the Ministry of Health of 23 July 2003, transposing Directive 2002/63/EC of 11 July 2002 regarding the methods of sampling for the Official control for pesticide residues in plant and animal origin products.



#### **15.1.4. Measures taken**

In case of irregular samples, the administrative or criminal sanctions are applied which are foreseen by the Law n° 283 of 30 April 1962, by the Legislative Decree of 3 March 1993, n° 123 (transposing Directive 89/397/CE on official control of foodstuffs), and by the Regulation (EC) 882/2004. Contaminated foodstuffs are confiscated on a precautionary basis and/or destroyed.

### **15.2. Quality assurance**

#### **15.2.1. Accreditation**

Official control public laboratories participating in 2007 in the national programme on pesticide residues in vegetables were 41.

Of 41 laboratories 28 are accredited in accordance with norm EN 17025.

Table G laboratories is enclosed, showing the list of accredited and non-accredited laboratories, participating in proficiency test and ring tests during the 2007.

#### **15.2.2. Analytic methods**

Analytic methods used mainly include GC multi-residue methods, associated with selective detectors (ECG, NPD, MS) and HPLC-UV.

#### **15.2.3. Participation in proficiency tests**

During the 2007, 24 Italian Laboratories attended:

9<sup>th</sup>CRL European Proficiency Test of Incurred residues of pesticides in strawberry homogenate organized by Community Reference Laboratory - Pesticides in fruit and Vegetables (University of Almeria );

EUPT- C1-SRM2 Proficiency Test on Incurred and spiked pesticides in wheat organized by Commission Reference Laboratories on Cereals & Feedingstuff and Single Residues Methods (Technical University of Denmark).

Of those 24 laboratories, 15 Laboratories took part in pesticide monitoring and are reported in table G. Some of laboratories attended FAPAS proficiency test and national ring tests.

## **16. Latvia**

### **16.1. Organization of monitoring programs and Sampling**

Ministry of Agriculture designed the monitoring program and collected data in cooperation with the Food and Veterinary Service. The Food and Veterinary Service is responsible for implementation of the sampling plans and the competent authority for the control of pesticides residues in foodstuffs of plant origin.

Sampling was carried out by trained inspectors and samples are taken in 27 district offices of the Food and Veterinary Service. Inspectors are responsible for a correct foodstuffs selection and delivery to the laboratory.

Samples are taken from domestic and non-domestic commodities on the level of wholesalers, retailers, market. All samples were analyzed at the National Diagnostic Centre of the Food and Veterinary Service which is the only laboratory carrying out the monitoring.

### **16.2. Quality assurance**

#### **16.2.1. Status of accreditation**

The National Diagnostic Centre Laboratory is accredited by the Latvian National Accreditation Bureau (LATAK) and by German Accreditation Body DAP according to the ISO/IEC 17025 standard. Certificates of accreditation can be found on the website of the Latvian National Accreditation Bureau (<http://www.latak.gov.lv>).

#### **16.2.2. Participation in proficiency tests**

During the year 2007 the laboratory participated in the EC Proficiency Tests FV-9 (University of Almeria) and EUPT-C1-SRM2 (Technical University of Denmark).

Implementation of EU quality control procedures

The laboratory has implemented the most of requirements from the EU Quality Control Procedures for Pesticide Residue Analysis (SANCO 10476/2003).

#### **16.2.3. Analytical methods used**

The method applied for control of pesticides residues in Latvia consists of an ethyl acetate extraction. The gas chromatography with NPD and ECD detectors is applied to analysis of the main part of pesticides. Liquid chromatography – tandem massspectrometry is used for pesticides not amenable to GC. Dithiocarbamates are analysed as CS<sub>2</sub> using GC-ECD after decomposing with tin chloride solution.

#### **16.2.4. Analytical uncertainty**

Calculation of the analytical uncertainty of results is based on relative standard deviation of recovery rates and results of proficiency testing if available. The estimated range of uncertainty is from 10 to 30%.

## **17. Lithuania**

### **17.1. Organisation of Monitoring programmes and Sampling**

State Food and Veterinary Service (hereinafter – SFVS) is responsible for the control of pesticide residues and for drawing up the monitoring programme. Territorial (10 counties, 5 cities) SFVS perform official control. SFVS control is accredited in accordance with EN ISO/ICE 17020:2004 standard.

The programme was designed by taking account of recommendations of the EU Commission, recommendations of the Ministry of Health, risk of pesticide contamination, data of earlier laboratory analysis, information of Plant Protection Service on the amounts of pesticides used, budget allocations for the implementation of the programme. Samples are taken from the products obtained in Lithuania, transported from the EU countries and third countries (import). Samples from EU countries are taken on the market and at import (third countries) – within the customs area, at the place of unloading. From local products samples are taken directly at the manufacturer or on the market. Local samples make one third of all samples.

Samples are selected in accordance with the provisions of Commission Directive 2002/63/EC, which has been transposed into a national legal act approved by the order of the Minister of Health. Food inspectors of the SFVS observe the approved sample selection procedures and use the required sampling equipment and packaging. Inspectors are trained to take samples from foodstuffs and are responsible for a correct selection, marking and delivery of the samples to the laboratory. Samples are collected from wholesalers, retail shops, and the customs.

The samples exceeding the MRL, the holder of the product is requested to prevent further distribution and selling of the lot. Monitoring of foodstuffs is carried out in accordance with the EU laws, with an emphasis on the risk factors of product contamination.

### **17.2. Quality assurance**

The analyses were carried out in the National Veterinary Laboratory (NVL). This laboratory is accredited according to EN ISO/IEC 17025 by the German Accreditation Body DAP for main methods used for official control of pesticide residues in food of plant origin.

Most of samples were analysed by multi-residue method EN 12393-(1-3):2000. The samples were extracted with ethylacetate or acetone-cyclohexane, cleaned up on gel permeation column and determined by capillary gas chromatography. The number of pesticide monitoring by this method is 213.

Dithiocarbamates were determined by method EN 12396-(1-3):2000. Pesticides surveyed: - Maneb group and Thiuram. Diphenilamine, thiabendazole, o-phenilphenol, benzimidazoles, benomyl group were determined by HPLC – multi-method. LC-MS/MS method was implemented and 27 samples were analysed.

NVL participated in Proficiency tests: EUPT C1 (Denmark), GC, LC-MS/MS-Multi residue method; EUPT-FV 09 (Spain), GC, LC-MS/MS-Multi residue method; FAPAS 0944 (England), wheat flour, GC-ECD, LC-MS/MS multi residue method.

Quality control procedures include daily checks of instruments sensitivity, possible matrix effects by injection of test solution. Most of EU Quality control procedures for pesticide residues analysis (SANCO/10232/2006) have been implemented.

Uncertainties of analytical results were estimated in process of in-house validation at the level of MRL. Two times a relative standard deviation is used as the measurement uncertainty. The level of uncertainty depend on varies and is in the level of 20 to 45 % of analytical results. The laboratory started to use recommendation for pesticide residues  $MU = 50 \%$ , too.

### **17.3. Other information**

On the questioned cases when MRL is at the level or a little above MRL, SFVS collaborated with National Nutrition Centre under the Ministry of Health to assess the risk, to evaluate consumption data

From 1 July 2008, the National Food and Veterinary Risk Institute under SFVS has started its activity. The institute has emerged as a result of restructuring of the National Veterinary Laboratory and the Lithuanian State Inspection of Veterinary Preparations. The institute has been set up following Regulation (EC) No 178/2002 of the European Parliament and of the Council which provides that all Members States of the EU shall have scientific food and feed risk assessment institutions in place. The former National Veterinary Laboratory acquires the status of a department of the National Food and Veterinary Risk Assessment Institute, i.e. it will perform laboratory analyses as before.

## **18. Luxembourg**

### **18.1. Organisation of Monitoring programmes and Sampling**

Pesticide residues were analysed at the laboratory of food control, being a division of the National Laboratory of Health (Ministry of Health). The annual programme based predominantly on the EC recommendation. The national programme included cereals and wine grapes, other commodities having less and less national agricultural importance.

The samples were collected by a food inspector of the food control unit. Imported products were sampled at wholesaler distribution points and retailers. Wine grapes were obtained directly from winegrowers, cereals from Agrocenter (crop collecting point). Due to the sampling requirements of directive 2002/63/EC (number of samples and sample sizes) no samples could be taken at the central market in the City of Luxembourg any more. As no MRLs were exceeded in 2007, no follow-up sampling or action taking was necessary.

### **18.2. Quality assurance**

The laboratory of food control is the only laboratory doing pesticide analysis in Luxembourg. It was accredited in 2003. Increasing demands for quality assurance makes it difficult to strike a balance between validation and output of results.

Pesticides were analysed by a gas chromatographic multi-residue method with MSD (DFG S19, modified). With this method some metabolites of pesticides residue definition were not detectable, for example omethoate. So, only the 'parent' compound Dimethoate was analyzed and quantified. For deciding whether a MRL was exceeded or not, an analytical uncertainty of 50% was taken.

In 2007, the laboratory participated in two proficiency tests organized by the community reference laboratories (pesticide residues in strawberries and cereals).

## **19. Malta**

### **19.1. Organisation of Monitoring programmes and Sampling**

The Plant Health Department within the Ministry for Resources and Rural Affairs was responsible for the drafting of the National Monitoring Programme of fresh produce for plant origin. The priorities for drafting this programme and the frequency of monitoring for the particular produce and analysis were based on a number of factors. These include the following:

- local production / imports of commodities;
- past findings that may indicate a historical residues problem;
- in the light of new risks (e.g. knowledge on use of banned pesticides) or other country monitoring schemes.

The sampling was performed by four officials from the Plant Health Department. The sampling procedures were those described in the Schedule 1 to the European Community Methods of sampling for official Control of pesticide residues in and on Products of Plant and Animal origin Regulations (LN479/04) (transposing Commission Directive 2002/63/EC). Sampling of organic produce was carried out in collaboration with the Malta Standards Authority. Sampling points included organised markets for local produce and farms for organic produce. The samples were sealed and double coded. The relevant details of the samples were inserted in a database to ensure that the identity of the samples is protected whilst assuring traceability of samples. Enforcement actions included issuing of warning letters and investigations. Enforcement sampling was not performed mainly due to the termination of the harvested product and since no other produce was sold through the organised markets. The Food Safety Commission was informed with the findings and made the information available on the Rapid Alert System.

### **19.2. Quality assurance**

Samples were sent for multi-residue analysis to CEFIT Laboratory (Sicily) which is accredited by Sinal (Sistema Nazionale Accreditamento Laboratorii - National System of Laboratory Accreditation) with accreditation number 0194.

The described methods are based on EU legislation and are based on procedures that are carried out in four stages as described below.

#### **19.2.1. Extraction**

Pesticide residues are extracted from the sample matrix by employing appropriate solvents in such a way to obtain maximum extraction efficiency and minimum co-extraction of the sample matrix which could interfere with the analysis;

#### **19.2.2. Purification**

The purification has the aim of removing interfering materials in such a way to obtain a solvent devoid of interfering substances;

### **19.2.3. Analysis**

The analysis is performed using gas-chromatography technique and using selective detectors: electronic capture device (ECD) for halogenated organic substances, NPD for organophosphates, and organonitrates;

### **19.2.4. Confirmation of results**

In order to confirm residues qualitatively and quantitatively in cases where MRL infringements are observed. In these cases liquid gas chromatography (LC-MS) is employed.

The method used by the sub-contracted laboratory is Method M a brief description of which is given below:

Extraction with acetone and liquid partitioning / dichloromethane / petroleum ether and if necessary purification with Florisil. A portion of chopped sample is homogenised with acetone and filtered. An aliquot of the filtrate is extracted with a mixture of petroleum ether / dichloromethane. The organic phase can be injected directly in the gas chromatography equipment with an appropriate detector or purified through a Florisil column. The eluant is concentrated for chromatographic analysis as described the sections above. The uncertainty of results is communicated on the certificate of analysis.

CEFIT laboratory is in compliance with the criteria of European standard UNI-EN 45001 (ISO/ICE 17025). The laboratory participates in the Ring-Test Arpa-Ferrara, Ministero Agricoltura (Patologia Vegetale), Roma. The measure of uncertainty of results was communicated on the certificate of analysis and was taken into account for legal purposes, but not taken into consideration for reporting to the European Commission.

### **19.3. Other information**

In 2007, the Plant Health Department transposed 20 Commission Directives related to Maximum Residue Levels in 8 sets of subsidiary legislation, namely LN104/07, LN110/07, LN129/07, LN260/07, LN261/07, LN262/07, LN263/07 and LN316/07.

## **20. Netherland**

### **20.1. Organisation of Monitoring programmes and Sampling**

The Food and Consumer Product Safety Authority performs the official monitoring in the Netherlands. The samples are taken without prior information about the presence of pesticides in the sample. Therefore, they represent the situation on the market for the product at that time. However, sampling is directed relatively more to products that need attention because of the violation rate in previous years. Therefore, high violation rates can indicate both an efficient sampling strategy and problems in the agricultural practice.

The Dutch Food and Commodity Law regulates the sampling procedure, i.e. the number of subsamples taken from a lot. This regulation is the implementation of the EC-directive 2002/63/EC. Inspectors of the five regional inspectorates are taking samples.

The main sampling points are the distribution centres of retail chains, importers, warehouses for both domestic and non-domestic products and the premises of the auction system for Dutch products. At those inspection points it is clear who is responsible for the product, so that appropriate legal action can be taken in case of non-compliance. In 2007 a number of samples was taken in retail shops as part of a the pilot project to provide public information on samples, results and responsible companies.

### **20.2. Analysis and Quality assurance**

One regional laboratory (VWA-Northwest, in Amsterdam) performs the analyses of the samples. The general strategy is detecting as many pesticides as possible in one analysis by using Multi-Residue-Methods (MRMs). The Dutch method consists of an acetone extraction, followed by a partition step of the residues into dichloromethane/petroleum ether. The extracts are analysed by a chromatographic separation and selective detection of residues. The main detection methods are Gas Chromatography (GC) - Ion-Trap Mass Spectrometric Detection (GC-ITD) and Liquid Chromatography – tandem Mass Spectrometry (LC-MS/MS). Only for some analytes that are not detectable sensitively enough by ITD, additionally GC with Electron Capture Detection (ECD) is used.

For some pesticides not amenable to the MRM, Single Residue Methods based on LC-MS/MS detection are used. In the 2006 program this was only the case for chlormequat, propamocarb and ethephon..

Dithiocarbamates are analysed as CS<sub>2</sub> using GC-FPD and GC-ITD after decomposing with acidic tin-chloride solution and extraction into iso-octane.

Together the scope of the methods is about 400 analytes.

The validity of the analytical results is governed by a quality assurance system under ISO17025 accreditation. The multi-residue methods are within the scope of the accreditation of the laboratory. The centralised laboratory has implemented the EU Guideline on Analytical Quality Control (SANCO 10232/2006). It takes part in FAPAS and EU proficiency tests.

The average inter-laboratory relative standard deviation (RSDR) is estimated at 25 % based on EU-proficiency tests (see SANCO 10232/2006). The expanded measurement uncertainty applied to reported results is 50 %. In this report, all results above the MRL



are considered to be violative. However, legal measures are taken after subtracting the measurement uncertainty from the analytical result.

## **21. Norway**

### **21.1. Organisation of Monitoring programmes and Sampling**

The samples were mainly taken at wholesaler's warehouse in different parts of Norway. Some samples were taken at retailers, farms or at marked places. Trained inspectors from the food control authorities were responsible for taking samples in accordance with a national sample plan and official guidelines for sampling (Comm.Dir. 2002/63/EC)..

Three follow-up samples were taken in 2007. The consignments were suspended until the results of the analysis were available. All the consignments were released.

### **21.2. Quality assurance**

The Norwegian Institute for Agricultural and Environmental Research, Bioforsk Plant Health and Plant Protection Division, was responsible for the analyses. The laboratory has been accredited for pesticide residue analyses since April 1st 1997. The EC guideline SANCO/10232/2006 "Quality Control Procedures for Pesticide Residue Analysis" has been implemented as far as practicable (Table G). The laboratory has participated in two EU proficiency tests organised by CRL's for Pesticide Residues (Table G).

All samples of fruit and vegetables were analysed using a GC-MS multiresidue method based on extraction with acetone (Luke method) covering 201 pesticides. An LC-MS/MS multi-residue method covering 78 pesticides and using the same extraction method was applied on selected samples. LC-MS/MS was also used for analysis of diquat and paraquat. Chlormequat, mepiquat, dithianon and propamocarb were determined using LC-MS. Phenoxyacid herbicides and glyphosate/AMPA were analysed by GC-MS after derivatization. The dithiocarbamates were determined with a spectrophotometric method after distillation of CS<sub>2</sub>. The reporting levels are the limit of quantification for all methods.

When a pesticide residue exceeds the MRL, quantitative determination is carried out on three replicate samples using three-level calibration. Recovery is checked and the identity of the pesticide confirmed by GC-MS or LC-MS/(MS).

The pesticide residues figures found are compared with the MRLs. If the results are above the MRL, the sample is defined as an exceeding. However, before any enforcement action is taken, the analytical uncertainty (95 % confidence interval) is subtracted from the measured value. If this figure still exceeds the MRL, enforcement action could be taken. From November 2007 the default expanded uncertainty figure of 50 % is applied.

## 22. Poland

### 22.1. Organisation of Monitoring programmes and Sampling

The State Sanitary Inspection (SSI), subordinated to the Ministry of Health, is the competent authority responsible for the organization and the supervision of monitoring of pesticide residues in foodstuffs of plant origin present on the market. The monitoring plans are developed by the experts from the National Institute of Public Health – National Institute of Hygiene (NIPH-NIH), and then forwarded to the SSI, which authorises and distributes those plans to the Voivodship Sanitary Epidemiological Stations (VSES). Monitoring plans include both Commission Recommendation concerning a co-ordinated Community monitoring program as well as national monitoring and official control of foodstuffs for compliance with MRLs. The national plans are based on specific conditions of Polish agriculture, consumption data, and the results of earlier monitoring programs. It has been also decided to continue analysis of product for infants and babies as a group of special susceptibility for pesticide residues.

The 16 laboratories of VSES took part in realization of the monitoring plan. Authorised and specially trained employees of Sanitary Epidemiological Stations collected food samples from the market (retail and wholesale), in some cases from the border, and directly from producers. Sampling was performed in accordance to the guidelines published in the *Regulation of the Minister of Health of the 20 April 2004 on sampling of food for the analysis of the residues of plant protection products*, which implemented the provisions of *Commission Directive 2002/63/EC*.

### 22.2. Quality assurance

All 16 integrated regional laboratories of SSI participated in monitoring and official food control were accredited according to PN-EN ISO/IEC 17025; the certificates were issued by the Polish Centre for Accreditation. The scope of accreditation covers different number of pesticides that each of those laboratories is able to analyse in food.

To analyse the pesticide residues belonging to different chemical groups, the analytical methods published in Polish versions of the European Standards, an in-house validated methods published by NIPH-NIH in Polish language in the *Wydawnictwa Metodyczne PZH* as well as methods published in recognized analytical journals were used. All laboratories participating in monitoring and official food control of pesticide residues in food apply internal quality control of results and some of them participate in proficiency trials organized by CRLs. Additionally, in 2007, 6 laboratories participated in proficiency trials organized by the NIPH-NIH, which was appointed by the Minister of Health as the reference laboratory.

All methods used by VSES laboratories have been validated. Validation parameters include also uncertainty. The methods were validated according to the guideline published in a handbook: “Validation of analytical methods and assessment of uncertainty of results in analysis of chemical contaminants in food” (in Polish) developed by the experts from the NIPH-NIH on the basis of document DG SANCO “Quality control Procedures for Pesticide Residues Analysis” and published in the *Wydawnictwa Metodyczne PZH*: 2003. Most of requirements from the above EU quality control guideline have been implemented, while some requirements only partly.

### **22.3. Other information**

The monitoring and official control of pesticide residues in food are performed in Poland in order to check compliance with the MRLs as set in the constantly updated Regulations of the Minister of Health *on maximum residue levels of pesticides that may be present in food commodities or on their surface*, following the relevant directives. Polish MRL legislation implements all EU MRLs and additionally includes national MRLs for some of those active substances for which no EU MRLs have been set.

For 28 samples with MRLs violations (8 samples from monitoring program and 20 from follow-up enforcement control), the administrative measures have been taken. The results for those violations has been forwarded from particular laboratories to the National Contact Point for the RASFF system and then to NIPH-NIH where risk assessment for consumers was performed according to document SANCO/2246/2001. In two cases, dietary intake assessment indicated a risk for the consumer. As an effect, two information notification to the RASFF system have been issued (carbendazim in mushrooms, notification No. 2007.CYR and carbendazim in apples, notification No. 2007 CYO). Other MRL violations did not pose a risk for consumers so they were not notified into European RASFF system.

## **23. Portugal**

### **23.1. Organisation of Monitoring programmes and Sampling**

In the mainland, sampling was carried out over the territory by inspectors of ASAE, the National Authority for Food and Economical Safety. In the autonomic region of Madeira sampling was carried out by DSMSA, the Agricultural Department for Markets and Food Safety and by the Regional Inspectorate of Economical Activities (IRAE). The autonomic region of Açores also participated in the programme, with sampling carried out by the Department of Agriculture and Veterinary and by the respective IRAE. For all cases of violations, risk assessment was carried out by Directorate-General of Agriculture and Rural Development (DGADR), which is the National Competent Authority. Results of products sampled in the mainland were reported to ASAE who is also the body responsible for enforcement actions, such as official warnings, levying of fines or preparation of prosecutions by the court, according to the severity of infringements. In the autonomic regions, Madeira IRAE and Açores IRAE are responsible for these actions.

Monitoring programmes are elaborated in a meeting with the participation of DGADR and representatives of the intervening central and regional bodies, including sampling inspectors and analysts. From 2007 on, the Office for Planning and Policies (GPP) who is responsible for the co-ordination of Food Safety issues at the level of the Ministry of Agriculture also participates in these meetings. The national programme for 2007 was based on the EU coordinated monitoring programme, which was extended to other pesticides according to the capabilities of the laboratories and to other commodities, such as spinach, cherimoyas, bananas and wine grapes. Spinach was chosen as a result of infringements found in previous years, and cherimoyas due to poor information available. A programme of target sampling for bananas and wine grapes grown in Madeira Island was decided with a view to the implementation of good agricultural practice in that region, for previous results have shown that some small farmers have continued to use plant protection products which are no longer approved for those commodities or no longer approved at all. Sampling was carried out by trained officers, according to the procedures laid down in directive 2002/63/EC. In the mainland samples were taken both at wholesale commerce, wholesaler's warehouses and retail. In Madeira and Açores most samples were taken at retail.

### **23.2. Quality assurance**

Two laboratories contributed to the national monitoring programme: the INIA Pesticide Residues Laboratory (LRP), in Table G referred as lab 1, and Agricultural Quality Laboratory of the Regional Agricultural Directorate of Madeira (lab 2). Lab 1 is accredited for the majority of compounds analysed since June 2005 and holds flexible accreditation since May 2008. Lab 2 expects accreditation in 2009, following conclusion of the new building and facilities and acquisition of new analytical instrumentation by the end of 2008.

The GC multi-residue methods used are method P in lab 1 and method M in lab 2, according to European Standard 12393. The determination of maneb group is based in European Standards 12396-1 in lab 1, and 12396-2 in lab 2. Due to the lack of LC-MS/MS instrumentation, several pesticides which can be analysed through MRM are still

analysed using SRM. This is the case of the benomyl group and thiabendazole which are determined by HPLC-DAD after ethyl acetate extraction and pH adjustment and the N-methylcarbamates group, which are determined by HPLC-FLD with on-line OPA derivatization, after extraction and clean-up identical to method P or M above (labs 1 and 2). Organophosphorus insecticides precursors of sulphoxides and sulphones are analysed by oxidation of the cleaned extract obtained according to method P (lab 1). Both these laboratories have participated in the EU proficiency tests, as reported in Table G.

All values detected above MRL (mean of at least 2 separate analyses) are reported as infringements. However, administrative actions are taken only in those cases where the levels found exceed generally 1,4 x MRL. For values up to 1,4 x MRL action taken consists of official warnings. This figure is based on the estimation of a maximum standard uncertainty of 20% for a number of pesticides and application of a coverage factor of 2 for a confidence level of 95%, and it is subject to generally small variations derived from routine quality control data.

### **23.3. Other information**

For all samples where infringements found related to pesticides for which an acute reference dose, ARfD, has been set or with relevant acute toxicity, risk assessment was carried out both for adults and children. In a few violative samples of bananas the levels of benomyl (group) or dimethoate/omethoate present did not exclude a theoretical health risk to children. However, considering that for foliar applications the majority of the residue should remain on the peel, even when active substances involved have significant systemic action, any health effects to children were considered very unlikely.

## **24. Romania**

### **24.1. Organisation of Monitoring programmes and Sampling**

Romanian Agriculture and Rural Development Ministry and National Sanitary Veterinary and Food Safety Authority (NSVFSA) have the responsibility for national monitoring plan of pesticides residues in fruits, vegetables and cereals. Each competent authority draws up one independent annual plan for control pesticide residues in food of plant origin. Implementation of monitoring plans is performed by Agriculture and Rural Development Ministry through Central Laboratory for Pesticides Residues Control in Plants and Vegetable Products, which analyses the samples taken by Counties and Bucharest Phytosanitary Units and Food Safety Departments within Sanitary Veterinary and Food Safety County Division.

National legislation is ensured by the Order of National Sanitary Veterinary and Food Safety Authority president, ministry of Agriculture and Rural Development, ministry of Public Health and of National Authority for Consumers Protection president no.12/173/286/1/124/2006, establishing maximum residues levels of pesticide residues in and on fruits, vegetables and cereals and other products of plant origin which transpose the following EC Directives: 76/895/EEC, 86/362/EEC, 86/363/EEC and 90/642/EEC with last amendments.

Samples are taken by phytosanitary inspectors, employers of Phytosanitary Units according to a sampling plan that has been foreseen in 2006 and inspectors involved in food safety field within Sanitary Veterinary and Food Safety County Division according to annual surveillance program in the field of food safety. The sampling procedure is according to the EU Directive no. 2002/63/EEC which has been transposed in national legislation. The priorities of planning the programme of the NSVFSA are fresh commodities imported from third countries and intra-community trade, the place of sampling are warehouses of importers, frequency of sampling is minimum 12 samples/product.

Ministry of Public Health is responsible for baby food analysis and food for special nutritional purposes. Within the National Prophylaxis Program - Public Health Subprogram, MPH realizes monitoring and control of pesticide residues from processed cereal - based foods and baby foods for infants and young children. There are involved 111 specialists in this activity, at county level. The sampling has been performed by the specialists from Counties Public Health Authorities, according to the working methodology elaborated by the Public Health Institute of Iasi. Sampling points are supermarkets. In 2007 all the samples analyzed complied with the legal provisions.

### **24.2. Quality assurance**

Central Laboratory for Pesticides Residues Control in Plants and Vegetable Products is accredited to EN ISO/IEC 17025 for GC-MS multiresidues method for analysis of vegetable products since 16.01.2006 with accreditation number 387-L. The 2041 samples were analyzed by GC-MS MRM method. In 2007 by this method were detected 100 analytes, 90 samples were also analyzed by LC-MS/MS method. The laboratory took part to the proficiency test EUPT-FV 09 and reported the 18 pesticides added to the strawberries homogenate. In the final report of proficiency test the laboratory was placed in A category ( laboratory code 131). The laboratory implemented EU Quality control

procedures for pesticides analysis – Document Nr. SANCO/10232/2006- 24 march 2006. Analytical uncertainty is calculated for GC-MS accredited method according to „EA guidelines on the expression of uncertainty in quantitative testing”.

From the 7 regional laboratories (Bucharest, Calarasi, Iasi, Suceava, Timis, Galati, Dolj) of the National Sanitary Veterinary and Food Safety Authority, 3 regional laboratories were accredited. The general strategy is detection as many pesticides as possible in one analyses by using Multi-Residue-Methods (MRMs). The extracts are analyzed by chromatographic separation and selective detection of residues. The detection methods are Gas Chromatography (GC) with Electron Capture Detection (ECD) and Gas Chromatography with Nitrogen Phosphorus Detection (NPD). The scope of the methods is to detect about 14 analytes. The validity of the analytical results is governed by a quality assurance system under ISO 17025 accreditation. The multi-residues methods are within scope the accreditation of the Laboratory. The central laboratory, has implemented the EU Guideline of Quality Control Procedure SANCO 10232/2006 and it had taken a FAPAS test.

Under the MPH there are 8 laboratories (4 regional labs in Bucharest, Iasi, Cluj Napoca and Targu Mures and 4 county laboratories in Prahova, Suceava, Buzau and Sibiu). Only one laboratory is accredited for pesticide residues analyses (Public Health Institute of Bucharest). The analyses of pesticide residues had been performed according to the analyse methods from currently Romanian Standards Analytical methods ( SR EN 12393-1:2003, SR EN 12393-2:2003 and SR EN 12393-3:2003). Participation in proficiency test 2 laboratories in 2007. The implementation of DG SANCO document 2007/3131- Method validation and quality control procedures for pesticide residues in food and feed is on going. The implementation of procedure according to „ Guideline for analytical uncertainty” is on going.

NOTE: The sum of the percentage is equal to 100% for all laboratories participating from each competent authority involved in the monitoring exercise(table G).

### **24.3. Other information**

Common Order 387/251/2002 for approval of Norms regarding foods for special nutritional purposes which transposes the EU directives.

Government Decision No. 984/2005 regarding the penalties and sanctions for non compliance cases to the sanitary veterinary and food safety legislation.



## **25. Slovenia**

### **25.1. Organisation of Monitoring programmes and Sampling**

#### **25.1.1. Responsibilities**

The competent authorities for the transposition of EU MRL legislation is the Ministry of Health (MH) in cooperation with Ministry of Agriculture, Forestry and Food (MAFF).

There are two authorities competent in the field of official control of pesticide residues in products of plant origin: Inspectorate for Agriculture, Forestry and Food (IRSAFF) and Health Inspectorate of the Republic of Slovenia (HIRS):

- IRSAFF is responsible for the control at the very first step of placing on the market of primary products by the primary producers. Trade with registered pesticides and their use is also a part of official control of IRSAFF.
- HIRS is responsible for the control of all foodstuffs, including baby food and infant formulae, in all other stages of the production chain, including importation.

The competent authorities for the control of pesticide residues in foods of animal origin are VARS and HIRS.

A detailed national pesticide monitoring plan, incorporating the EU co-ordinated monitoring programme, is co-ordinated and prepared annually by the MH and by the MAFF following consultation with the official control bodies, the residue laboratories and other stakeholders. For the preparation of the final opinion on the national monitoring programme a panel has been established by both ministries (MH and MAFF)

The panel comprise of representatives from MH, MAFF, the Phytosanitary Administration of the Republic of Slovenia, governmental and non-governmental consumer associations, official laboratories, the National Chemicals Bureau, risk assessors and official control bodies.

#### **25.1.2. Designing of Programmes (priorities, targeting)**

Commodities which are included into the monitoring programme are selected each year covering staple food, food included in EU coordinated programme as well as food which is offered on the Slovenian market, as part of national rolling programme. Beside that also commodities which were non-compliant in previous year are included. Various reference sources are used to determine the commodities to be surveyed. The programme is designed to generate information on typical residue profiles of particular types of products and on major trends in the incidence and levels of pesticides. The selection of pesticides to be sought is primarily influenced by pesticide use; potential for residues based on use pattern; toxicological profile of the pesticide; analytical capabilities. The number of samples per survey in general varies between 5-50 samples.

#### **25.1.3. Sampling: personnel, procedures, sampling points**

Samples of HIRS were taken by the inspectors or contracting institution, following internal procedures at different stages of the production, processing and distribution chain, but mainly at wholesale/retail. Samples of IRSAFF were taken by the inspectors.

#### **25.1.4. Enforcement action**

According to the provisions of the legislation the following administrative measures can be taken in cases of detected infringements: warning, temporarily prohibiting the production and trade, ordering the removal of deficiencies in the production and trade, prohibiting the production and trade, ordering the foodstuffs, which endanger public health to be seized and safely destroyed at the expense of the legal or natural person at whose premises such product were discovered, sealing establishments, work areas, equipment and items, or prohibiting the use of an establishment, working areas, equipment and items in case the determined deficiencies representing a threat to sanitary safety of foodstuffs. Inspectors also have the responsibility to pronounce offences (possible options, related to the level of offence, are: verbal warning, order to pay) and to report criminal offences.

#### **25.2. Quality assurance**

##### **25.2.1. Status of accreditation of laboratories; number of laboratories**

In Slovenia three institutes are nominated for performing the analyses of samples of foodstuffs taken within monitoring programmes - National Public Health Institute (achieved accreditation in August 2003), and Regional Public Health Institute of Maribor (achieved accreditation in November 2001), for execution of the program prepared at MH. The third laboratory - Central Laboratories of Agricultural Institute of Slovenia, is executing the program prepared at MAFF since 2006. The laboratory achieved accreditation for determination of pesticide residues in June 2005.

##### **25.2.2. Analytical methods used**

Samples were analysed using different analytical methods, mainly multiresidue methods based on gas and liquid chromatographic techniques employing mass-selective detection systems. Beside multiresidue methods also single residue methods for determination of dithiocarbamates, chlormequat/mepiquat and fentin were used. Agricultural Institute of Slovenia used two multiresidual methods (one GC-MS and the other one LC/MS/MS), method for determination of benzimidazoles and method for determination of dithiocarbamates.

##### **25.2.3. Participation in proficiency test**

National Public Health Institute and Regional Public Health Institute of Maribor participated in few proficiency testing schemes. Basic ones were FAPAS and EUPT (European Commission's Proficiency Test on Pesticide Residues for different matrices), within them, 4 – 8 different testing per year were performed. Agricultural Institute of Slovenia participated in the proficiency testing scheme BIPEA (Bureau Interprofessionnel d'Etudes Analytiques) by analysing 14 samples per year and in EUPT (European Commission's Proficiency Test on Pesticide Residues in Fruit Vegetables) by analysing one sample.

##### **25.2.4. Implementation of EU quality control procedure**

With respect to quality of data generated in the frame of the EU residue coordinated programme, the results of the analysis of foodstuffs were obtained in compliance with the

requirements of Directive 1993/99/EEC, its Article 3, applying Quality Control Procedures for Pesticide Residue Analysis and accreditation according to the ISO17025. The pesticide analyses of foodstuffs were performed following entirely the guidelines of Quality control procedures for pesticide residues analysis, Document N° SANCO/10476/2003, 5 February 2004 (and updating issues). Others documents were also taken in to account, for example, EURACHEM/CITAC Guide Quantifying Uncertainty in Analytical Measurement, QUAM: 2000.P1, Second Edition: QUAM: 2000.P1. Central Laboratories of Agricultural Institute of Slovenia fulfil the requirements of standard SIST EN/ISO 17025 and are accredited by French accreditation body COFRAC, N° 1-1336.

#### **25.2.5. Analytical uncertainty**

Residue analytical results have a relatively large inherent uncertainty depending on the concentration and type of the analyte in different matrices. The analytically determined expanded uncertainty is between 20-50% in the residue range of 0.001-10 mg/kg. According to the Commission Directive 2002/63/EC analytical result  $x$  is stated together with the expanded uncertainty  $U$  calculated using a coverage factor Quantifying Uncertainty Reporting Uncertainty QUAM:2000.P1 (which gives a level of confidence of approximately 95%).

Agricultural Institute of Slovenia has uncertainty of 90% in the concentration range  $\leq 0.01$  mg/kg, 64% in the concentration range  $>0.01$  mg/kg to  $\leq 0.1$  mg/kg, 46% in the concentration range  $>0.1$  mg/kg to  $\leq 1$  mg/kg and 32% in the concentration range  $>1$  mg/kg (Principles and Practices of method Validation, ed.: A. Fajgelj, A. Ambrus, The Royal Society of Chemistry 2000).

### **25.3. Other information**

#### **25.3.1. Details on risk assessment**

To evaluate acute risk to the consumers the UK Consumer Exposure model for determination of short time exposure using high portion consumption (97,5 percentile of food consumption) for toddlers and adult persons was used. The pesticide intake/exposure was compared to the ARfD or ADI, when ARfD was not determined (DG SANCO/3346/2001 recommended methodology for the evaluation of the risk to the consumers).

For chronic risk assessment we used the data of average food consumption /day/person (data from Slovene Statistic Office – Yearly Household Budget Survey or data from WHO European Diet, when there is a lack of Slovene data for a specific commodity), and 90,0 percentile of pesticide residue value, compared to the ADI (%ADI).

Agricultural Institute of Slovenia calculated acute risk assessment with UK Consumer Exposure model for determination of short time exposure using high portion consumption (97,5 percentile of food consumption) for adult, infant, toddler, children 4-6 year old, children 7-10 year old, children 11-14 year old, children 15-18 year old, vegetarians, elderly who live at home and elderly-residential people. The pesticide intake/exposure is compared to the ARfD or ADI when ARfD is not determined.

### **25.3.2. Details on reporting level**

In the table A2 Part II - Fruits and vegetables in the 6<sup>th</sup> column the range of reporting levels is indicated for certain pesticide residues due to different reporting level which were used in different laboratories for matrix concerned.

## **26. Slovak Republic**

### **26.1. Organisation of Monitoring programmes and Sampling**

#### **26.1.1. Responsibilities**

The State Veterinary and Food Administration of the SR under responsibility of the Ministry of Agriculture is a competent authority for pesticide residues monitoring in foodstuffs of plant origin. The Public Health Authority of the SR under the Ministry of Health of the SR is a competent authority for baby food monitoring.

#### **26.1.2. Drafting of the national plan**

For selection of samples and their number, certain criteria as consumption and production of a given commodity in Slovakia, observations from sample analyses in the previous year and the RASSF messages were set down. Fresh fruit and vegetables were preferred in selection of commodities. The number of samples collected was limited by analytical and budgetary possibilities. The coordinated program of the EU was included in the national program. In terms of its requirements also 27 samples of organic agricultural products were drawn and analyzed.

#### **26.1.3. Sampling**

The type of sampling was in compliance with Commission Directive 2002/63/EC that is implemented into the Slovak food legislation. The sampling was done by trained inspectors originating in 40 District Veterinary and Food Administrations. The samples from domestic production were collected directly at producer sites, other samples were collected at packing stations (nuts, dry fruits), wholesale storehouses and retail outlets as well as within the checking of food import from third countries at the points of entry.

#### **26.1.4. Execution of measures**

In case of infringement related to MRL (considering measurement uncertainty) the inspectors followed the legislation of the SR. After being sent a notification to the national contact point with regard to the RASSF system a risk analysis was performed.

### **26.2. Quality assurance**

The National Reference Laboratory for Pesticide Residues in Foods of Plant Origin – The State Veterinary and Food Institute in Bratislava – was authorized to perform sample analyses. This laboratory analyzed all samples, except for 38 samples of baby food. A general strategy for determination of the widest possible spectrum of pesticides by multiresidual method (MRM) was adopted. The principal of the method is extraction into ethylacetate followed by purification and gel permeation chromatography in ethylacetate/cyclohexane system. The detection was performed by GC/ECD, FPD and NPD. Other part of the spectrum of monitored residues was determined by MRM, using the method QUECHERS for extraction and clean-up and the determination itself is performed by GC/MSMS. The positive findings are confirmed with MSD. A modified method for measurement by HPLC/DAD/FLD system was used for three fungicides (benomyl group, thiabendazol and imidacloprid). A separate method of derivatization to

CS<sub>2</sub>, followed by GC/ECD detection was used for determination of maneb group. LC/MS/MS was used for determination of aldicarb and methomyl. The quality of analytical methods was in compliance with the requirements of SANCO/10232/2006 document. The laboratory is accredited according to the standard STN EN ISO/IEC 17 025 by the Slovak National Accreditation Service (SNAS). The laboratory had participated in the relevant FAPAS performance verification schemes and EUPT - proficiency tests organized by the CRLs.

The laboratory of the Public Health Authority that analyzed 38 samples of baby food is accredited according to the standard STN EN ISO/IEC 17 025 by the Slovak National Accreditation Service.

## 27. Spain

### 27.1. Organisation of monitoring programmes in Spain:

The Spanish Pesticide Monitoring Programme for pesticide residues in food was carried out by the Autonomous Communities. The sampling in origin is coordinated by the Spanish Ministry of Agriculture, Fishery and Food (MAFF). The results of consumption's sampling, including baby food sampling, were gathered by the Spanish Nutrition and Food Safety Agency (SNFSA). The SNFSA is the contact point between Spain and the European Commission. In case the sampling happens when importation takes place, this sampling is done by the *Dirección General de Salud Pública y Sanidad Exterior*, belonging to the Ministry of Health and Consume Affairs, as well as the SNFSA.

The objectives of the programme were to assume that:

The pesticides were used accordingly with the Good Agriculture Practice.

The health of consumers was well protected.

The samples were collected by the inspectors following the requirements of the directive 2002/63/CE (Real Decreto 290/2003) at productions, wholesalers, and retail level and border inspection posts. Most of the samples were taken from domestic production because more than 95% of the Spanish food is produced in the own country. After being taken, samples are sent to the laboratories.

There are two subprograms ("in origin" and "in market") mainly distinguished for the place where samples are taken. The responsible of the coordination for the "in origin" subprogram is the *Subdirección General de Medios de Producción Agrícolas* from the MAFF. The responsible of the coordination for the "in market" subprogram is the SNFSA.

The programme takes into account:

- Proportion of the crops accordingly with the production
- Requirements from EU co-ordinated programme
- Some special actions concerning problems with certain crop
- Products more consumed
- Alerts regarding exceeding of MRLs
- Results of previous years

The responsible personal of the sampling are the inspectors from the Autonomous Communities. Samples are taken from wholesales, in farm gate and retail. Inspectors from agricultural departments take samples following the Manual Proceeding made at national level and co-ordinated by S. G. Medios de Produccion Agrícolas. In the moment of importation the sampling is done by staff depending functionally on *Dirección General de Salud Pública y Sanidad Exterior*.

## 27.2. Quality assurance

31 laboratories carried out the analyses of the monitoring programme.

11 laboratories took part in Proficiency EUPT from European Commission and 14 laboratories are participating in the Spanish proficiency Test (Test-Qual) and 13 laboratories have made several exercises of intercalibration organized by FAPAS.

Sixteen laboratories are accredited and some others are in very advance phase to obtain the accreditation. The accreditation can be occurred only if methods are validated by collaborative studies. The validation "in house" requires a lot of investigation. For the new molecules the accreditation seems difficult to obtain. The sixteen laboratories accredited assumed approximately the 58% of the samples. It is important to emphasize that requirements for accreditation of ENAC (organism responsible of accreditation in Spain) are very hard and it is only awarded for each pesticide and food item.

For all the samples is applied the method of multiresidues and maneb-group, and the method of benzimidazol and methyl carbamate is applied to the samples that had registration or some problems were found.

For multiresidues methods the samples are extracted by a solvent (acetone or ethyl acetate) then partitioned by liquid-liquid. The purification for organic-halogenated and organic phosphate molecules were performed by cartridge set-pack, florisil or GPC. ECD, NPD, FPD conduct the determination or mass detector GC/MS is used, as confirmation for samples above MRL's when the techniques are applicable.

Additional methods are used for determination of methyl carbamate, maneb groups, inorganic bromides, benomyl group and so on.



## **28. Sweden**

### **28.1. Organisation of monitoring programmes and sampling**

#### **28.1.1. Responsibilities**

The National Food Administration (NFA) is the responsible authority for the monitoring of pesticide residues in foods.

Design of the programmes (priorities, targeting, criteria for the percentage of samples to be taken from the organic sector)

The number of samples to be collected of each food is risk related and partly linked to the foods consumption rate and takes into account both the amount of domestic production and the amount of imports from EU-countries and third countries. However, the number is also based on the importance of the foodstuff in the diets of infants and young children as well as residues found in prior samples. The number of samples from the organic sector was roughly dependent on its share of the market and availability on the market.

#### **28.1.2. Sampling: personnel, procedures, sampling points**

Samples collected in accordance with the monitoring programme were defined as surveillance samples i.e. there were no suspicions about excessive amounts of pesticide residues in the lots prior to sampling

#### **28.1.3. Personnel**

Plant inspectors from the National Board of Agriculture collected most of the samples in accordance with instructions from NFA.

#### **28.1.4. Procedures**

The sampling was done according to Commission Directive 2002/63/EEC. Each sample was sealed and labelled with a unique sample identity.

#### **28.1.5. Sampling points**

Fresh fruit and vegetables were sampled at wholesalers' warehouses in the first trade channel. The imported cereal grains were sampled at the port where the shipment was discharged. Samples of domestic produced cereal grains were collected at the milling plants. Most of the samples of processed or frozen fruit and vegetables, juices, fruit drinks, rice, cereal products and vegetable oils were collected in retail shops or department stores.

#### **28.1.6. Enforcement action**

When a surveillance sample contained a pesticide residue above national or EC-MRL (see uncertainty), the National Food Administration prescribed a condition for the offering for sale or other handling of the food or lot to which the food belonged. The remaining part of the lot, if any, was prohibited for being put on the market. As a follow-

up, next lots of the commodity from the grower/exporter were detained and enforcement samples were collected.

## **28.2. Quality assurance**

### **28.2.1. Status of accreditation of laboratories; number of laboratories**

Both laboratories, National Food Administration (NRL) and Eurofins Food/Agro AB (Official laboratory) are accredited by the Swedish accreditation authority SWEDAC for all analytical methods used for the NFA's official control of pesticide residues in food of plant origin.

### **28.2.2. Analytical methods used**

All samples of fruit and vegetables were analysed by the multi-residue method M200. By this method, the samples were extracted with ethyl acetate after addition of sodium hydrogen carbonate. The uncleaned extracts were determined by LC-MS/MS and GC-MS/MS.

In all, by using both multi-residue methods and single residue methods it was possible to determine 300 pesticides corresponding to 353 analytes.

#### **Participation in proficiency tests**

National Food Administration has participated in two proficiency tests (PTs) organised by EU. Eurofins Food/Agro AB has participated in five PTs organised by EU and 15 PTs organised by FAPAS, UK (Table G).

### **28.2.3. Implementation of EU quality control procedures**

The EC guidelines SANCO/10232/2006 "Quality Control Procedures for Pesticide Residue Analysis" and its revision SANCO/2007/3131 have been fully implemented (Table G).

### **28.2.4. Analytical uncertainty**

The residue figures found are compared with the MRLs. If the figures, without any correction, are mathematically above the MRL, the sample is defined as an exceeding. However, before any enforcement actions are taken the analytical uncertainty is subtracted from the measured value (95 percent confidence interval). If the corrected figure still exceeds the MRL, enforcement actions could be taken. As a general rule, the figure 50% is used as a default uncertainty for enforcement purposes.

## **28.3. Other information**

### **28.3.1. Background on legislation**

Sweden has implemented all EC-MRLs. For a few pesticide/commodity combinations National limits are in force.

### **28.3.2. Details of risk assessment**

The short-term intake has been calculated for those pesticides that have an ARfD assigned by EU or WHO.

## **29. The United Kingdom**

### **29.1. Organisation of Monitoring programmes and Sampling**

#### **29.1.1. Responsibilities**

The UK monitoring programme is overseen by the independent Pesticide Residues Committee (PRC). The purpose of the UK monitoring is to:

- back up the statutory approvals process for pesticides by checking that no unexpected residues are occurring;
- check that residues do not exceed statutory EU and UK MRLs; and
- check that human dietary intakes of residues are at acceptable levels.

#### **29.1.2. Design of Programmes**

In addition to cost, the food chosen to include in our surveys takes account of:

- foods covered by the EU programme of surveys;
- the importance of the food within UK diet, and the balance of food types;
- information on use of pesticides and evidence of residues in earlier surveys;
- the time that has passed since they were last tested.

Around 84 % of samples were obtained at retail level from 24 towns/cities spread throughout the twelve regions of the UK, including Scotland, Wales and Northern Ireland. The places selected are changed each year. Official inspectors from Department for Environment, Food and Rural Affairs (Defra) also collected samples at non-retail sources for: table grapes, pears, (sweet) peppers, potatoes and tomatoes.

Samples were taken, prepared and analysed according to Commission Directive 2002/63/EC.

#### **29.1.3. Follow-up action**

##### **Brand naming**

All monitoring results are published in full on the PRC website ([www.prc-uk.org](http://www.prc-uk.org)) for consumer and stakeholder information, including:

- date and place of collection
- country of origin or manufacture;
- brand name and packer/manufacturer; and
- residues detected.

When the pesticide residues found suggested use of a non-approved pesticide, or the use of a pesticide not in accordance with the conditions of its approval, the source of the sample was investigated to establish the cause of the residues. Further targeted surveillance is carried out to check whether the result represented an isolated incident. If

problems are identified in retail samples of produce of EU or third country origin, the details are reported to the Member State or exporting country concerned.

### **29.2. Quality assurance**

Analytical methods comply with the 3rd edition (SANCO/10232/2006) of the EU Quality Control Procedures for Pesticide Residues Analysis (Guidelines for Residues Monitoring in the European Union). Five laboratories are commissioned to carry out the analysis; one undertook analysis of animal products only and therefore is not listed in Table G. All of the laboratories meet the requirements of a recognised accreditation scheme, such as the United Kingdom Accreditation Service (UKAS) or the requirements of Good Laboratory Practice (GLP). Methods are validated in accordance with ISO 17025 or IUPAC harmonised guidelines. The residues data provided were not corrected for recovery and are expressed on the basis of the fresh weight of the sample and as defined by the MRL.

All laboratories carrying out work have taken part in proficiency testing exercises, including European Union Proficiency Testing (EU PT). Defra undertakes its own proficiency testing programme known as the Food Analysis Performance Assessment Scheme (FAPAS) which the laboratories participate in.

### **29.3. Other information**

In 2007, the UK did not carry out the homogeneity exercise.

The results for grapes and (sweet) peppers were reported to PSD monthly and published on the PRC website.

908 samples of animal products were also tested under the national programme buty are not covered by this report.