

EUROPEAN COMMISSION  
HEALTH & CONSUMER PROTECTION DIRECTORATE-GENERAL  
Directorate F - Food and Veterinary Office  
Unit 4 - Food of plant origin, plant health; processing and distribution  
In cooperation with JRC IRMM, Food Safety and Quality Unit and DG SANCO D3

**Monitoring of Pesticide Residues  
in Products of Plant Origin  
in the European Union, Norway, Iceland and  
Liechtenstein**

**2003 Report - Summary**

October 2005

## 1. SUMMARY

### 1.1. National Monitoring programmes

All 15 Member States and the EFTA States who signed the EEA agreement<sup>1</sup> (Norway, Iceland and Liechtenstein), monitored pesticide residues in foodstuffs of plant origin as part of their national monitoring programmes. Overall, in 2003, about 47,500 samples were analysed. Member States analysed for as many as 519 different pesticides. About 92 % of the samples analysed were fresh (incl. frozen) fruit, vegetables and cereals, while about 8 % were processed products. These are the same proportions as in 2002.

Of the total, 58% of the samples contained no detectable residues, while a further 37% of the samples contained residues that were below or equal to the maximum residue limits (MRL) laid down at EU or national level. In 5.1 % of all samples, residues above the MRL (national or EC-MRL) were found. These are the same proportions as in 2002. When only fresh products are considered, the percentage of MRL exceedances is 5.5 % and the percentage of samples with no detectable residues is 56%. Again, these are the same proportions as in 2002.

The most frequently found pesticides in 2003 have been reported separately for fruit and vegetables and for cereals. Fungicides were mainly found on fruit and vegetables while the pesticides most often found on cereals were insecticides. The analytical possibilities of the laboratories continue to improve.

### 1.2. EU co-ordinated monitoring programme

In the special EU co-ordinated programme, eight commodities (cauliflower, sweet peppers, wheat, aubergines, rice, grapes, cucumber and peas) were analysed for 42 different pesticides.

Being a rolling programme, 3 of the commodities evaluated (cauliflower, sweet peppers, wheat) were the same as in 1999 and another 3 (rice, cucumber, peas) were evaluated in 2000. Grapes were evaluated in 1996, 2001 and 2003 but this is the first time that aubergines have been part of the EU co-ordinated programme. With regard to pesticides, all 20 of those analysed in 1998 to 2000 are included in the group of 42 analysed in 2003.

Although the total minimum number of samples recommended in the co-ordinated programme in the EU is constant (496 samples<sup>2</sup> every year), this number has been greatly exceeded in all previous years. In 2003, around 8600 samples were analysed, but not every sample was analysed for all 42 pesticides.

With regard to all eight commodities investigated, about 65 % of the samples were without detectable residues, 32 % of the samples contained residues of pesticides at or below the MRL (national or EC-MRL), and 3.2 % above the MRL.

Residues at or below the MRL were found most often in grapes (57 %), followed by peppers (34 %), cucumber (24 %) and wheat (22%). MRLs (including national or EC-MRLs) were exceeded most often in peppers (6 %) and grapes (5 %), followed by cucumber (3 %) and aubergines (3 %).

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<sup>1</sup> Agreement on the European Economic Area

<sup>2</sup> including EU Member States and Norway, Iceland and Liechtenstein

The most often detected\* pesticide was procymidone (11 %\* of all samples analysed for the substance), followed by maneb group (10 %), iprodione (5.9 %), chlorpyrifos (5.5 %), endosulfan (5 %) and benomyl group (4.5 %). Another group of pesticides had percentages varying from 1 % to under 4 %, among them pirimiphos-methyl (3.9 %), azoxystrobin (3.5 %), methomyl (2.4 %), methamidophos (2 %), chlorpyrifos-methyl (1.8 %), cypermethrin (1.8 %) malathion (1.8 %) and captan+folpet (1.6 %). For 23 out of 42 pesticides the frequency of samples with residues corresponded to less than 1 %.

The frequencies of MRL exceedances for single pesticide detections are all below 1%, except for methomyl, where 1.34% of all samples analysed exceeded MRL. The main other exceedances, in decreasing order are methiocarb (0.50 %), metalaxyl (0.48 %), methamidophos (0.33 %), benomyl group (0.31 %), acephate (0.29 %), dimethoate (0.27 %) endosulfan (0.24 %) and bromopropylate (0.22 %). For 12 substances no exceedance has been reported.

Except for the methomyl group, which exceeded MRLs most often in grapes (4.1 % of all samples), followed by metalaxyl in peppers (1.96 % of all samples), methiocarb in peppers (1.22 % of all samples), and captan+folpet in peas (1.15 %), all the other exceedances of pesticides for specific commodities were below 1%.

The most important pesticide-commodity combination where detectable residues were found (including those at or below the MRL and exceeding the MRL) was maneb-group/cauliflower where 26.5% of cauliflower samples had residues of this group of pesticides. This is followed by procymidone/grapes (22.4%), procymidone/peppers (17.9%), chlorpyrifos/grapes (17.3%), endosulfan/peppers (16.5%), iprodione/grapes (16.3%), maneb-group/grapes (14.3%), vinclozolin/peas (12.1%), pirimiphos-methyl/wheat (11.9%) and pirimiphos-methyl/peppers (10.5%).

With the commodities examined in 2003 having already been evaluated in 1999 (cauliflower, peppers, and wheat), 2000 (rice, cucumber and peas) and 2001 (grapes - also evaluated in 1996), we can get a comparative picture over time. The overall time-comparative picture on residues exceeding the MRL is one where there has been just 1 notable increase in frequency (metalaxyl on peppers - 1.96% of samples exceeded MRL in 2003), while there have been notable declines for 6 other pesticide/commodity combinations. The declines are for methamidophos/peppers, maneb-group/cauliflower, maneb-group/peas, maneb-group/rice, benomyl-group/peas and maneb-group/cucumber. The percentages of exceedances for the time-comparable pesticide/commodity combinations are now all below 1% in 2003, except for the aforementioned metalaxyl on peppers.

The overall comparative picture on residues at or below the MRL is one where there has been little or no change in many pesticide/commodity combinations. Although some pesticide/commodity combinations have had a notable increase in the frequency of samples with residues, there have been a roughly similar number of cases where the frequency has had a notable decline.

On all eight commodities as a whole, pesticides samples in 2003 have had a frequency of detection lower than in 2002 and similar to the average of previous years. However, data are not completely comparable given that commodities and pesticides evaluated were different in

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\* Percentages include sum of samples with residues at or below the MRL and exceeding the MRL.

the various years. It should also be borne in mind that comparison is difficult due to the fact that MRLs have changed from 1999 to 2003. For example, in the case of metalaxyl on peppers the MRL was reduced in 2000 to the limit of determination and the increase in the frequency of exceedance mentioned above should be seen in this context.

Chronic exposure assessments demonstrate that the intake of pesticides remains clearly below the ADI<sup>3</sup> and there is no concern of chronic toxicity. However, for the assessment of acute exposure, the data show that the acute RfD<sup>4</sup> was exceeded in nine cases.

### **1.3. Quality assurance and sampling**

Samples for the national and the EU co-ordinated programmes were taken at different points such as retailers, wholesalers, markets, points of entry and processing industries. National sampling plans exist in most countries, taking into consideration e.g. consumption data; production figures import/export relation and risks (e.g. results from previous years).

Accreditation of laboratories has been completed in some of the countries, whereas in other countries accreditation has been achieved only for some of the laboratories. Although there was some progress in 2003 compared to 2002 in the accreditation status of laboratories, there were only 12 out of 18 countries (about 67 %) which have all their laboratories accredited. The remaining 6 countries have either some but not all of their laboratories accredited or are still in the preparation phase for accreditation.

With regard to the monitoring samples (national and EU programmes) taken in the EU and EEA States, approximately 75.5% were analysed by accredited laboratories and 24.5% analysed by laboratories which were not accredited.

However, it can also be stated that considerable improvements have been made in the EU and EEA States with the implementation of the EU QC procedures. In the majority of the participating countries at least 70% the EU QC procedures have been fully implemented.

17 out of 18 countries reported that they took part in proficiency tests in 2003 and 16 out of 17 have participated in an EU proficiency test organised in 2003. In addition, 15 countries took part in some of the FAPAS<sup>5</sup> rounds in 2003.

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<sup>3</sup> Acceptable Daily Intake

<sup>4</sup> Acute Reference Dose

<sup>5</sup> Food analysis performance assessment scheme, a proficiency testing scheme organised by the UK