

Legal contamination of fruit and vegetables

Pesticide contamination of fresh produce sold in the European Union has risen over the last six years. Harmonisation of legislation across Europe has in some member states reduced the stringency of national controls such that higher residue levels are now permitted. Manfred Krautter of Greenpeace Germany reports.

The Greenpeace Consumer Network is a project of several Greenpeace offices committed to food that is safe, free from toxic residues, not genetically engineered, and to ensuring that consumers are well informed. In Germany the Network regularly tests pesticide levels in fresh produce such as grapes, peppers, strawberries and lettuce from leading German supermarkets, and from organic food shops. Findings are published along with the names of producers and brands and have become an important source of independent information for consumers¹. When legal limits have been exceeded the responsible authorities are informed.

Comprehensive testing

In 2005 Greenpeace Germany carried out an extensive set of pesticide residue tests on 658 samples of fresh conventionally grown produce from the leading supermarket chains in Germany, Austria and Switzerland. Samples were analysed for about 300 pesticides each and significant differences found between supermarket chains, product types and countries of origin². Supermarkets were ranked. In response to widespread media coverage several retailers announced stricter controls and standards and leading discounters started to introduce organic produce in their shops. However, there are still many concerns.

More violations of MRLs

Analyses carried out by Greenpeace and the official European Union (EU) monitoring programme prove that pesticide contamination of fresh produce sold in the EU has risen over the last six years. The percentage of Maximum Residue Levels (MRLs) being exceeded in the EU rose from 3.3% in 1998 to 5.5% in 2003³. Exceedances of MRLs in fruit and vegetables in Germany doubled from 4.2% (in 1998) to 8.4% (2003)⁴. The 2005 supermarket testing carried out by Greenpeace showed 15% of products with residues reaching or exceeding legal limits.

More multiple residues

According to the EU the percentage of produce containing multiple pesticide residues has risen from 13% (in 1998) to 21% (2003). However, Greenpeace's results

indicate the situation is likely to be even worse; 57% of samples they tested in 2005 contained multiple residues, with an average of 3.5 pesticides per sample. This suggests that official laboratories are unable to detect all the pesticides present in food and that problems stemming from multiple residues may be much more relevant than assumed. Multiple contamination may pose greater health risks.

Acutely toxic products

In 24 (3.6%) of the 658 samples of fruit and vegetables taken by Greenpeace in 2005 the acute reference doses (ARfD⁵), as defined by the World Health Organisation (WHO) and the German Federal Institute for Risk Assessment (BfR)⁶, were exceeded for children aged two to five years (assuming average bodyweight of 16.15 kg and typical food consumption patterns^{7,8}). In 17 of the 24 cases the existing MRL was not exceeded, indicating clearly that these often do not take account of the acute toxicity of pesticides as expressed by the ARfD. The BfR confirmed in a statement published in November 2005⁹ that such exceedance of ARfDs can cause acute impairment of human health which is unacceptable and that MRLs should be adjusted to exclude such health risks. The issue is not a new one. In 2004 the EU Commission wrote in its monitoring report¹⁰ 'on the basis of the results of the acute exposure assessment a health risk cannot be excluded, especially for vulnerable groups.'

These trends constitute a crisis in food safety within the conventional food system in Europe. Increasing pressure on prices and inadequate systems for safeguarding standards among conventional food producers are two of the factors responsible for this.

Official systems inadequate

But official food control in EU countries is anything but satisfactory, and is in part responsible for the fact that a large proportion of food marketed in the EU does not meet the minimum statutory requirements. In the European Commission Food and Veterinary Office's monitoring reports on the performance of member countries' systems of control, major deficiencies in monitoring are regularly pointed to. For example,



Manfred Krautter with Renate Künast, then Federal Minister for Consumer Protection and Agriculture, at a Greenpeace demonstration, September 2003.

Photo: Frank Hormann, Greenpeace

in the case of Germany:

- 2001 'The control systems ... have limited scope and their efficiency is uncertain. The controls for pesticide residues are correctly managed but are not strictly enforced. The Rapid Alert System for Food is not efficiently used and pesticide residues are not considered as a serious hazard.'¹¹

- 2004 '... no evidence was provided to demonstrate that follow-up to infringements involving different German states is carried out efficiently or effectively.'¹²

In a 2003 study Greenpeace assessed the control of pesticide residues in food in German states based on five different criteria. The average standard of monitoring was assessed as 'unsatisfactory'¹³. A new study on the performance of controls on German food production will be published in 2006.

Is organic better?

Several independent pesticide monitoring programmes for organically grown food have been conducted in Germany in the last few years. Greenpeace, too, regularly carries out tests and publishes its findings. These analyses show that organic produce is, as a rule, free from pesticide residues. For example, in a programme monitoring organic produce in the German state of Baden Württemberg the average content of pesticide was 0.002 to 0.007mg/kg (this included conventional products wrongly labelled as organic). The average found in conventionally grown produce was around 200-fold higher at 0.4 mg/kg (similar to the average of 0.31 mg/kg found by Greenpeace in its 2005 supermarket test)¹⁴. A programme of analyses was carried out by the Bundesverband Naturkost Naturwaren (national organic food federation, BNN) targeting organic produce with a higher risk of contamination or wrong labelling. In this analysis MRLs were found to have been exceeded in 0.8% of the organic produce¹⁵ whereas 8.4% of conventionally grown fruit and vegetables exceeded MRLs for pesticides in Germany in 2003.

Although there are occasional lapses with organic food controls, it is the closest

to pesticide-free food available on the market. The greatly reduced amount of pesticide in organic produce is perhaps the most important difference measurable by chemical analyses between organic and conventional produce. This difference in quality has been emphasised favourably by Greenpeace, consumer organisations and even members of the government¹⁶.

Not surprisingly, consumer exposure to pesticides is known to be reduced when they eat organic food: in a US study, children eating conventionally grown food had higher amounts of pesticide in their urine than those eating organic products¹⁷.

On the whole consumers trust organic products, and this trust must be honoured. However, organic food does not always live up to expectations. A test on sweet peppers carried out by an official food control institute in Southern Germany in 2005 showed that 34% (25 of 74 samples) of conventionally grown peppers exceeded MRLs but so did 11% (two of 18 samples) of the organic samples¹⁸. Pesticide residues in organic produce are unacceptable and the market for organic products is particularly susceptible to scandals. The organic sector ought therefore to continue to improve the safeguards on its standards with the aim of marketing goods entirely free of residues.

Numerous adverse headlines about conventionally-produced food contrast with the stable image of organic products and have clearly prompted many consumers to switch to organic. Sales in the sector in Germany rose by 12% in 2004 and by 15% in 2005. In explanation the BNN's director, Elke Röder, commented: 'The public discussion on genetically engineered food certainly plays a part in this. But the many reports on pesticide residues in conventional fruit and vegetables are another major reason.'¹⁹ Many conventional retailers and food discounters are now introducing or expanding their range of organic food. In fact, the availability of organic products often cannot match the strong growth in demand. EU countries should help farmers with the transition to organic farming to meet this growing demand. Otherwise

unscrupulous traders may be tempted to label and sell non-organic food as organic. Food businesses and state authorities must keep a close eye on the organic market to prevent such developments.

Support for pesticide reduction

Greenpeace seeks not just to draw attention to pesticide residues used in conventional agriculture and their potential consequences for consumers. It also aims to support ecological agriculture and to minimize the use of pesticides in conventional agriculture. The environment and the health of those working in agriculture are then also better protected. For this reason Greenpeace is committed to seeing national pesticide reduction programmes and support for organic farming. In Europe there are already pesticide reduction programmes in countries such as Denmark, the Netherlands, Norway and Sweden²⁰. Such a programme was put forward in Germany in 2004 and is slowly moving towards implementation. Its aim is to reduce the incidence of conventionally grown food exceeding limits to below 1%, and to reduce the use of pesticides by 15% in ten years²¹. Greenpeace does not regard this as sufficient but it is the first step in the right direction. However, there is great resistance in German-speaking countries, which are after all home to the world's three biggest pesticide producers²², a lobby which exerts huge pressure.

Higher pesticide exposure: the price of MRL harmonisation

The percentage of MRL exceedances in conventionally grown produce would have risen much more markedly in the past few years had not MRLs been made less stringent during the same time period. A study by Greenpeace on changes in German MRLs shows that between 1999 and 2003 more than 1000 MRLs were altered, 41% of these were lowered, i.e. made more stringent, and 59% raised, i.e. made less stringent²³. Limits have been raised 54-fold on average which is by much more than they have been lowered (on average 30-fold). As a consequence higher pesticide contamination in European food is now tolerated. The study shows that the introduction of harmonized EU standards has been a main driver in the erosion of strict national standards. Since harmonization of MRLs is an ongoing process it is very likely that this loss of stricter standards is still taking place. The EU plans to have all MRLs harmonized by the end of 2006 (see figure 1).

Another study evaluating German MRL changes between January 2000 and January 2005 found that MRLs for 139 pesticides had been raised²⁴. Ten different international and national hazard lists for toxic substances were checked to see if any of the 139 pesticides were listed²⁵. The results showed that 39 of the pesticides were unlisted while 100 were on at least one hazard list, 39 were on at least three hazard

Table 1. EU pesticide limits

drinking water	0.0001 mg/kg
baby food	0.01 mg/kg
organic produce (BNN standard)	0.01 mg/kg
conventionally produced food	typical limits, 1-10 mg/kg

lists, and seven pesticides were on five or more hazard lists. These seven pesticides are chlorpyrifos, diazinon, dicofol, endosulfan, fenvalerate, quinalphos and triadimefon. The MRLs of such highly harmful pesticides were even increased in commonly consumed foods. For example, MRLs for diazinon were increased 25-fold for tomatoes, potatoes and sweet peppers and 50-fold for exotic fruit. Diazinon is listed as reprotoxic, endocrine disrupting and highly dangerous for water bodies.

Rising MRLs: a threat to the organic market

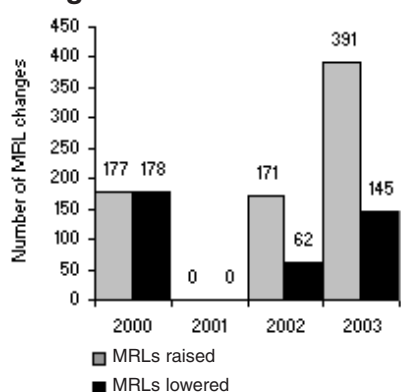
A recent EU survey showed consumers' top food safety concern was regarding the level of pesticide residues. And yet EU policy is relaxing requirements. Raising MRLs means that the percentage of exceedances will fall and higher residue levels tolerated. The relaxation of MRLs means there is declining pressure on retail chains from the monitoring authorities. It also means that one of the main features distinguishing conventional and organic produce threatens to disappear, a development which could have an adverse impact on the position of organic products in the market.

The EU's policy on MRLs must be questioned. Depending on the kind of food and growing methods involved, the limits on pesticide residues in force vary considerably. One kilogramme of fresh fruit and vegetables may legally contain up to 100,000 times as much pesticide as one kilogram of drinking water (see table 1). Parents who make vegetable mash for their baby from conventional produce see their child having to consume 1,000 times more pesticide than if they consumed bought baby food. These 'double' standards make no sense. Greenpeace therefore argues for a limit of 0.01 mg/kg for each pesticide in all agriculturally produced food and for cumulative limits to curb multiple residues to be introduced (at present these only exist for drinking water).

Greenpeace demands

- Reducing all MRLs for pesticides in food to 0.01 mg/kg or 0.03 mg/kg for multiple residues
- No licensing of substances not detected in routine monitoring
- Effective programmes reducing pesticide use by 50% by 2010
- Stricter effective controls on food by state institutions

Figure 1. Number of MRL changes



Annual number of changes in German national MRLs for pesticides, 1999-2003.

- Consumer information laws allowing consumers to find out which retailers sell food contaminated with pesticides (such as the brand 'name and shame' legislation in the UK)
- Food trade to establish quality management systems for safeguarding standards and ensuring goods are uncontaminated
- Support for the farming and sale of organic products

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Austrian NGO's supermarket pesticide reduction campaign

Global 2000, the Austrian member of Friends of the Earth International, have been running a pesticide reduction programme since January 2002. They began with a field survey of illegal pesticide use followed by a media campaign warning about pesticide residues in peppers under the slogan 'pesticide peppers'. In March 2002, they tested peppers grown in glasshouses and found significant concentrations of DDE (the breakdown product of DDT). Global 2000 then launched a three week campaign to inform consumers and put pressure on retailers to respond.

Global 2000 wanted to campaign alongside a supermarket with serious market share, and in June 2002 the Billa chain, which holds 40% of the market, responded by asking for Global 2000's support to address the health problems of residues in food. In the same month, food safety authorities in Vienna offered their cooperation and by November the pesticide reduction programme had begun.

Global 2000's main goal is for zero residues and for supermarkets to push for stricter MRLs than government. In the first phase of the programme supermarkets were required to reduce MRLs to 80% of the official value. As a result, Billa supermarket MRLs are now stricter than the legal MRLs. Compliance is monitored by the supermarket and Global 2000. Global 2000 takes regular samples, analyses the results and shows them to the fruit and vegetable producers and suppliers.

Results of zero residues and residues not exceeding the supermarket MRLs are communicated to suppliers and growers, for information only. Where MRLs are exceeded, producers and suppliers are required to act to prevent a repeat of the situation. Where the MRLs are exceeded for a second time by a specific grower, this supplier is banned for a short period while he/she has a chance to comply. In cases of continued exceedance and acute toxicity

concerns, the food product is removed and the grower banned from the supply chain. Global 2000 demands that farmers and suppliers make public their application records and discusses with farmers how pesticide residues degrade in produce. Roundtable discussions provide advice on how growers could change their agricultural practice to avoid residues and environmental problems. Producers now disclose their applications (amount, time, type), and alternative pest management methods are tried out. Suppliers initiate their own trials, for example, on optimising application techniques.

Building up a database of residue analysis results gives Global 2000 a broad picture of which produce is most problematic. Tighter control can be exerted over these products and farmers assisted in finding alternative production methods. Global 2000 experts can supervise production in the field while problems are being ironed out. 'Being on the fields, talking to farmers and learning about their problems is an important part of our work. We want to establish a close connexion between supermarket and producer, so that producers can rely on increased sales which can compensate for possible yield loss from reduced pesticide use' says Karin Bartonek of Global 2000.

Some time ago phase two of the pesticide reduction programme started requiring residues to be under half the officially sanctioned MRL. Billa supermarket chain has been making good progress and now does more residue analysis than the whole national monitoring programme. Recently, in 2006, REWE Austria joined the work deciding to apply the stricter residue limits across its three supermarket affiliates.

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