



Sprayed World

– Problems and opportunities
in pesticide use



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ISBN 978-963-9999-05-3



1. PROBLEMS IDENTIFIED

Water pollution

Results of a study¹ conducted under the EU projects MODELKEY and OSIRIS, published in 2011 September found that pesticides show a much higher risk to the environment than it was expected. “Water monitoring data was taken from four river basins in Europe: the Elbe, Scheldt, Danube and Llobregat. Of 500 assessed organic compounds, 73 show clear risk of polluting river basin waters. In addition, around 74% of the 44 chemicals that were identified as being potentially high and very high risk were pesticides, a result which does not correspond with the EU-wide priority substances currently listed in the WFD (under Annexe 11). This is potentially alarming, given the strict risk assessments required before pesticides can be approved for market use.” EU’s Water Framework Directive requires that Member States ensure that the nation’s surface waters and groundwater are of good status by 2015 and that these waters remain in a healthy condition. This clearly shows that a lot of action needs to be done to minimize the environmental risks posed by pesticide use.

Many new pesticides enter the market which are not included immediately in the monitoring programs and the pollution of waters could underestimated.

Measurements from the last ten years showed that 59% of Hungarian measured surface water samples contained pesticide residues.² At the national level pesticide monitoring of surface water and groundwater exists, but comprehensive assessment and results of water monitoring are usually not open to the public. In surface water only 20–25 pesticide active ingredients are monitored annually, and in groundwater only about 20 active ingredients are monitored, additionally the number of analyzed samples and amount of money allocated for analyses (from all tax payer’s money) sinks every year. This number is absolutely insufficient as in the EU we have authorized more than 300 different active ingredients of pesticides and we think that every significant surface water stream and groundwater source should be analyzed at minimum twice a year for all used pesticides/active ingredients in the basin. From an economical point of view the polluters pay principle – companies benefiting on pesticides should pay for national monitoring and pesticides user for contingent pollution – should be implemented. Furthermore there is no combination and cumulating effect taken into account of defining the legal limits if more than one pesticide is in water. Unfortunately, there is not even a legal limit value for most pesticide ingredients in water.

Food Contamination

According to EU Barometer 2010 report, 72% of EU citizens see pesticide residues as their number 1 health worry. The European Food Safety Authority (EFSA) published in 2010 their 2008 Annual Report on Pesticide Residues. 1.610 samples were analyzed in different countries. Almost half of the samples contained pesticide residues and 2.2 % exceeded legal limits³ (MRL’s or maximum residue limits). The highest exceedance was for spinach (6.2%) and the lowest for potatoes (0.5%). Acute and chronic pesticides exposure could

1 <http://ec.europa.eu/environment/integration/research/newsalert/pdf/253na3.pdf>



2 <http://ecotox.hu/main.php?id=754>

3 <http://pan-europe.info/Issues/index.html>



4 <http://pan-europe.info/Campaigns/chemicals/documents/pesticides%20and%20health,%20overview.doc>

cause several health problems and serious diseases. Many scientific studies proved a link between pesticides exposure and cancer, leukemia, and disruption of the endocrine (ED), immune or neural system⁴. As there are still several highly hazardous, e.g. mutagenic, endocrine disrupting pesticides approved in the EU – we can't even say that agricultural products containing pesticide level below MRL's are safe.

What is even more worrying is that 26.7% of the food contains multiple residues, 10.9% 2 residues, 6.5% 3 residues, 4.2% 4 residues. Despite criticism from science and from NGOs, EFSA does not consider health risks of multiple residues and only makes calculations as if every healthy and adult citizen can only be exposed to one pesticide in his or her food. This makes the whole assessment of risks of EFSA unscientific and useless. Every citizen will – through eating standard food – be exposed to dozens of pesticides every day and risks assessment should include the effects of all these chemical cocktails. The combined effects of pesticides are denied and this makes an assessment futile. Governments and government institutes tend to say food is safe, everything is under control and consumers need not worry. Additionally, a new EU limit should also reflect regulation of pesticides intake for sensitive groups of consumers as children, pregnant women or vegetarians.

1. 1 WATER MEASUREMENTS: WHAT IS IN OUR RIVERS AND IN OUR DRINKING WATER

5 The Laboratory of the Academy is not accredited but Hungarian decision making is often based on their measurements. Detailed results in Hungarian: http://www.levego.hu/sites/default/files/nki_oko-tox_2011_jel.pdf

Clean Air Action Group from Hungary and CEPTA from Slovakia organized surface and drinking water testing in the Danube region. We agreed with the Plant Protection Institute of the Hungarian Academy of Sciences to take and analyze samples for us⁵.

Winter measurements, 2011

The first round of Danube sample analyses took place in February 2011. 11 samples were taken in a two-week period from Heinburg (SK-A border) through Bratislava (SK) to Dunaújváros (Central-Hungary). In February there is no actual use of pesticides, but surprisingly all samples contained pesticide residues, but below official limit values. We found residues of hazardous, persistent pesticides, including (2,4-D, *alachlor*) ingredients. One sample even contained 6 different residues, including several hazardous chemicals. 5 out of 11 samples contained *alachlor* – a substance banned in the EU for many years⁶. *Alachlor*⁷ and 2,4-D⁸ are both potential carcinogen and endocrine disrupting substances. In this measurement other monitored pesticides were obsolete pesticides, no more in use.

6 http://ec.europa.eu/food/plant/protection/evaluation/existactive/alachlor_en.pdf

7 http://www.pesticideinfo.org/Detail_Chemical.jsp?Rec_Id=PC35160#ChemID

8 http://www.pesticideinfo.org/Detail_Chemical.jsp?Rec_Id=PC33440

Summer measurements, 2011

The second water sampling period took place between the 18th of May and the 21st of June; during the period of intensive herbicide use in agriculture⁹. We took 31 samples in the Danube river-basin: 19 river, 4 lake and 8 drinking water samples in 28 spots – 1 sample from Sloak-Austrian border, 4 samples from Slovakia and 26 from Hungary. The results were worrying, as we found a high concentration of pesticides, even banned pesticides in the samples and we found the same pesticides in a bit smaller concentration in the drinking water samples:

9 Press release in Hungarian: http://levego.hu/hirek/2011/07/gyomirtok_nyaranta_az_ivovizben

- All of the 31 samples contained pesticide residues. The most often identified substances were: *acetochlor*, *metolachlor* and phased out (banned) *atrazine* and *trifluralin*. Same sample were polluted with 4–5 different pesticides.
- Two drinking water samples from Budapest contained pesticide *acetochlor* above the 100 ng/l limit value (drinking water limit is 100 ng/l for each pesticide and 500 ng/l for all pes-

ticides). One sample contained 221 and the other 173 ng/l acetochlor. Furthermore all except one of the 31 samples contained acetochlor. California EPA considers acetochlor as carcinogen¹⁰ and the EU as an endocrine disrupting¹¹ compound.

- 7 out of the 31 samples including 4 drinking water samples contained banned herbicide *atrazine*. Atrazine is a highly hazardous substance, and it has been phased out in the EU several years ago. Studies showed that atrazine poses danger to human health and to the environment.¹² There are also some concerns regarding its carcinogenic effect¹³. Despite that Hungarian drinking water standard for atrazine is 2 ng/l, some of the Hungarian drinking water samples contained atrazine above 20 ng/l.
- 20 out of the 31 samples were polluted with *metolachlor*, a substance classified as carcinogen category C by the US EPA.
- 7 samples contained *trifluralin* which has also been phased out from use in the EU's agriculture. We measured *trifluralin* 3 times above the EU's surface water maximum annual average, 30 ng/l for *trifluralin*. *Trifluralin* is also an EPA C carcinogen and it is on EU's endocrine disrupting list.
- More than half of the samples contained herbicide *2,4-D*, which is classified as a possible carcinogen (2B) by the IARC¹⁴.
- 5 samples contained *diazinon*. This substance should not be used in the EU and it is also on the US TRI's developmental toxin list¹⁵.

Although we found some drinking water samples with pesticides above legal limit, we must highlight that bottled water can be also dangerous to human health. According to recent studies some plastic bottles leach toxic antimony¹⁶ and ED substances.¹⁷

1.2 SUPERMARKET MEASUREMENTS: WHAT IS IN OUR FOOD – PAN EUROPE SUPERMARKET RESIDUE TESTING PROJECT

Pesticide Action Network Europe (PAN Europe) – with its member NGOs – carried out pesticide residue testing in several supermarkets all over Europe. Four rounds of testing took place and in all cases PAN found illegal and unsafe pesticides, furthermore in all rounds there were samples with pesticides above EU maximum legal limits.

1st round of testing, autumn 2008

In autumn 2008, 124 grape samples from 18 supermarket chains in Germany, France, Hungary, Italy and the Netherlands were tested¹⁸. LIDL, Carrefour, Metro and ALDI were selected for analysis in more than one country. Analysis of table grapes purchased from 18 major food retailers across Europe revealed illegal, unauthorized and unsafe pesticides hidden in grapes on sale to consumers. Ninety nine percent of grapes contained pesticides. On average seven pesticides were detected per sample. One third of grapes were classified as 'Not Recommended'¹⁹ for consumers owing to critical levels of pesticide contamination. The study found six grape samples with pesticides above EU maximum legal limits, as well as two Italian grown samples containing a banned pesticide. PAN identified 64 different pesticides in the samples – many with links to cancer, infertility, nerve damage, hormonal disruption and DNA mutations. The cocktail effects of these pesticides to human health are unknown (see inside back cover).

Imported grapes were on average more contaminated than those grown in the EU. Over 50% of grapes from Turkey received 'Not Recommended' status. Fewer than 20% of grapes from Greece and Spain had same rating. With 38% 'Not Recommended' ratings, grapes grown in Italy showed the worst contamination from the European producing countries.



10 http://www.oehha.ca.gov/prop65/prop65_list/files/P65single052011.pdf

11 http://ec.europa.eu/environment/docum/pdf/bkh_annex_15.pdf

12 Atrazine paper's challenge: Who's responsible for accuracy? Study claims to have turned up many dozens of errors and misleading statements in a review of published data. May 6, 2010; http://www.sciencenews.org/view/generic/id/58945/title/Atrazine_paper

13 <http://ije.oxfordjournals.org/content/28/5/836.full.pdf>

14 <http://kockazatos.hu/anyag/24-d>

15 http://www.pesticideinfo.org/Detail_Chemical.jsp?Rec_Id=PC35079

16 <http://www.ncbi.nlm.nih.gov/pubmed/19467696>

17 <http://www.environmentalhealthnews.org/ehs/news/science/plastic-bottles-raise-estrogen-activity-of-spring-water/>

18 Pesticides in grapes: unsafe, illegal and unauthorized; 24 November 2008 <http://www.pan-europe.info/News/PR/081124.html>

19 In total 38 of the 124 grape samples (30.6%) received 'Not Recommended' status according to evaluation protocols pioneered by Greenpeace. The Greenpeace system takes into account residue levels exceeding the maximum residue levels, the Acute Reference Dose (ARfD), and the Acceptable Daily Intake (ADI), as well as multiple exposure and the special sensitivity of children.



20 http://levego.hu/vegianyag/sajto_14.htm

The 2nd round of testing, summer 2009

The 2nd round of testing²⁰ was undertaken in the summer of 2009, only in Hungary, by the Clean Air Action Group (CAAG). Imported peppers and Hungarian strawberries were tested from supermarkets. 10 out of the 16 pepper samples contained pesticide residues. One pepper sample imported from Morocco contained pesticide dimethoate 7 times above the legal limit (MRL). Dimethoate is classified by EPA as carcinogen category C, furthermore dimethoate is an endocrine disrupting substance and there are some concerns that dimethoate is toxic to reproduction. Pesticide residues were detected in 13 out of the 17 strawberry samples. 7 samples contained more than one pesticide. One sample contained reprotoxic thiophanate-methyl two times above MRL.

3rd round of testing, November 2009

In November 2009 51 lettuces and 47 mandarin oranges bought in supermarkets around Bulgaria, Hungary, the Netherlands and Slovakia were tested²¹. The survey discovered²² that:

- Most produce sampled had multiple traces of harmful pesticides, often several times maximum permitted doses.
- Two samples had illegal substances.
- One Bulgarian lettuce contained a gene-mutating compound (thiophanate-methyl) at over sixty times the permitted level.
- Nearly all the mandarins analysed (96%) contained pesticide traces.
- Procymidone and vinclozolin, illegal and dangerous toxins, were found.
- Lettuce bought in Slovakia contained seven different pesticide residues including bi-phenthrin, an agent which interferes with human hormones.

PAN stated, that “Our tests have revealed endocrine disruptors, which affect human hormones. This reinforces the need for the EU Environmental Council which meets next week to produce a system for assessing endocrines in food and consumer goods and regulate their combined effects.”

4th round of testing, June 2010

PAN Europe tested²³ vegetable and fruits samples in June 2010 in four Central and Eastern European countries. PAN members bought tomatoes, strawberries, cucumbers and grapes from supermarket chains in Bulgaria, the Czech Republic, Hungary and Slovakia. 35 of the 49 samples contained some residues. Ten samples included active ingredients not authorized in the EU and 3 Bulgarian samples contained residues over EU Maximum Residue Limits (MRLs). According to the EU-Regulation No 1097/2009 from November 2009 the MRLs of 11 pesticides have been lowered for many commodities. PAN measured procymidone above new MRLs in Bulgarian, Hungarian and in Slovakian samples although new MRLs did not apply to those products in that time.

The EPA classified²⁴ procymidone as a probable human carcinogen. Also procymidone is toxic to reproduction²⁵ and an endocrine disrupting substance²⁶.

Additionally, some of the most dangerous pesticides for children were found in strawberries and tomatoes. Carbendazim is a well known endocrine disruptor, blocking the male sex hormone and has possible effects on fertility. For children and the unborn even small doses can be harmful. So these strawberries should never be eaten by children and pregnant women. Chlorpyrifos is a developmental neurotoxin. If the unborn are exposed negative behavior effects could result in later life (ADHD, memory and motility problems, etc.) even in very



21 What's for Christmas dinner? Food industry flouts EU pesticide limits www.pan-europe.info/News/PR/091217.html

22 Study of Pesticide and Biocide Contamination of Fruit and Vegetables in Four EU Member States: www.pan-europe.info/Pesticide_and_Biocide_Contamination_of_Fruit_and_Vegetables_results.pdf

23 PAN Europe CEEC testing with PAN Europe co-founding:
49 samples: 25 tomatoes, 11 cucumbers, 12 strawberries & 1 grape from Slovakia, 15 Bulgarian, 14 Hungarian, 10 Czech and 10 Slovakian samples
Bulgaria, Czech Republic, Hungary, Slovakia – sampling 7 th of June (Slovakia 16th)
Testing in dutch accredited laboratory: AgriQ

24 www.epa.gov/oppsrrd1/REDS/procymidone_tred.pdf 2005

25 sitem.herts.ac.uk/aeru/footprint/en/index.htm

26 www.pan-europe.info/Resources/Policy/List_of_CM12ED_plus_list_of_CM13.pdf

small doses. So these tomatoes should never be consumed by pregnant women. It is recommended for children to eat only organic tomatoes and strawberries in this cases.

Overall, the least contaminated products were found in the Czech Republic, and the most contaminated products were found in Bulgaria. The testing revealed: 93.3% of the Bulgarian samples contained pesticides, and we found 3 samples above existing MRLs and 1 above the new procymidone MRL. Furthermore, we found 9 banned substance in 8 samples. We measured 44 active ingredients in 15 Bulgarian samples. One Turkish originated tomato sold in Bulgaria contained 7 active ingredients, 2 banned in EU, one 4 times above MRLs. In Hungary, one tomato sample contained procymidone 7.5 times above the new, non-binding MRL. In Slovakia, a Polish origin tomato sample contained 4 different pesticide residues, including the fungicide thiophanate-methyl²⁷, a substance of concern for health and environmental reasons. The one Slovakian grape sample contained 6 different kinds of active ingredients and procymidone found 4 times above new MRL.

PAN's aim was to bring the European Commission to start protecting consumers' health and not the interests of pesticides industry and producers by new MRL based on the latest scientific information (ADI and ARfD limits) and to include combination and cumulative effect. The possible combination effect of low doses mixture was well illustrated in Turkish tomatoes we bought in Bulgaria with 7 different pesticide residues or the Greek originated strawberries with 6 different residues²⁸. These results however, show that there is strong need of strong National Action Plans for the sustainable use of pesticide and implement an effective Pesticide Use, Control and Financing system in order to protect consumers health and the agro-ecosystems.



27 http://www.pesticideinfo.org/Detail_Chemical.jsp?Rec_Id=PC34588

28 Thiophanate methyl and carbendazim synergy was mentioned in the scientific literature and even EFSA mentioned in its assessment that the uses of these two active substances have to be considered carefully.



2. TASKS, OPPORTUNITIES

2.1 REGULATION 1107/2009 ON THE PERMITTING OF PLANT PRODUCTION PRODUCTS

The EU adopted a new, strict Regulation on the permitting of plant production products in 2009. The main topics for the implementation of the Regulation 1107/2009 are²⁹:

- Priority to non-chemical protection methods before chemical pesticides use;
- “cut-off” criteria for banning the most hazardous pesticides (carcinogenic, mutagenic, toxic for reproduction, endocrine disrupting pesticides).
- The criteria for endocrine disrupting pesticides. The Commission has to come up with a proposal by the end of 2013 for these criteria. These criteria could also be used for the chemicals at large (REACH). Commercial interested parties already organized several ‘scientific’ meetings to play down the criteria for endocrine disruption.
- The use of science. One main provision in the new Regulation is the obligation to use open peer-reviewed scientific literature in decision taking. In the past the decisions were largely based on industry tests. This will have to change.
- The candidates of substitution. Commission has to present a list of harmful pesticides which do not meet the standards of the ‘cut-off’ principle, but are still very harmful. EU

29 <http://pan-europe.info/Campaigns/chemicals.html>



member states will have to substitute the pesticides placed on this list by other methods or chemicals if feasible (comparative risk assessment).

- Combination toxicity. In decision taking the effects of combinations of pesticides (addition, synergy) have to be taken into account. EFSA plays an important role in defining methods. The process is slow. PAN-member Natuur en Milieu already in 2002 published a method to account for addition effects of organophosphates.

Priority to non-chemical protection

As described in article No 14: “Member States shall take all necessary measures to promote low pesticide-input pest management, giving -whenever possible-, priority to non-chemical methods, so that professional users of pesticides switch to practices and products with the lowest risk to human health and the environment among those available for the same pest problem...” and in practice it means to prefer all agro practices, measures and non-chemically based preparations like crop rotation, resistant varieties, agro-ecosystem design, non-stress planting systems supportive to natural plant-immunity; protection areas for pollinating and beneficial organisms, pheromones bewildering and traps; spreading and supporting natural enemies;... most of these approaches are already well known and applied in organic or integrated farming systems. (source: SUD directive...)

Endocrine disrupting (ED) pesticides

‘Endocrine disruptors’ or ‘endocrine disrupting chemicals’ (EDCs) are both natural and man-made chemicals that may interfere with the body’s endocrine system and produce adverse developmental, reproductive, neurological, and immune effects in both humans and wildlife³⁰. In some cases these disruptions can cause cancerous tumors and birth defects. Specifically, they are known to cause learning disabilities, severe attention deficit disorder, cognitive and brain development problems, deformations of the body (including limbs); sexual development

30 <http://www.niehs.nih.gov/health/topics/agents/endocrine/index.cfm>



The legal text of pesticide Regulation 1107/2009 states in Annex II, 3.6.5:

3.6.5. An active substance, safener or synergist shall only be approved if, on the basis of the assessment of Community or internationally agreed test guidelines or other available data and information, including a review of the scientific literature, reviewed by the Authority, it is not considered to have endocrine disrupting properties that may cause adverse effect in humans, unless the exposure of humans to that active substance, safener or synergist in a plant protection product, under realistic proposed conditions of use, is negligible, that is, the product is used in closed systems or in other conditions excluding contact with humans and where residues of the active substance, safener or synergist concerned on food and feed do not exceed the default value set in accordance with point (b) of Article 18(1) of Regulation (EC) No 396/2005.

By 14 December 2013, the Commission shall present to the Standing Committee on the Food Chain and Animal Health a draft of the measures concerning specific scientific criteria for the determination of endocrine disrupting properties to be adopted in accordance with the regulatory procedure with scrutiny referred to in Article 79(4).

Pending the adoption of these criteria, substances that are or have to be classified, in accordance with the provisions of Regulation (EC) No 1272/2008, as carcinogenic category 2 and toxic for reproduction category 2, shall be considered to have endocrine disrupting properties. In addition, substances such as those that are or have to be classified, in accordance with the provisions of Regulation (EC) No 1272/2008, as toxic for reproduction category 2 and which have toxic effects on the endocrine organs, may be considered to have such endocrine disrupting properties.

problems, feminizing of males or masculine effects on females³¹. The endocrine system is a set of glands and the hormones they produce, which help guide the development, growth, reproduction, and behavior of animals and humans³². Several substances are identified as endocrine disruptors, including dioxin, polychlorinated biphenyls, flame retardant polybrominated diphenyl ethers, phthalates, bisphenol A, DDT and several other pesticides.

The European Union has an unofficial list³³ of 66 potential EDC chemicals including several pesticides. The EU does not have a general restriction on the use of EDCs. Low doses are also an element in endocrine disruption disregarded for a long time in decision-making. The science group of Prof Kortenkamp showed that even at official No Effect Levels of chemicals, endocrine disrupting effects can be shown³⁴. Hundreds of scientific studies proved the adverse health effects of polycarbonate's monomer Bisphenol-A. Several of these studies showed negative effects at low doses. Denmark finally took the lead in banning baby bottles, in the end followed by European Commission. Under REACH (EU's chemical policy) there is a possibility to restrict EDCs and EU Regulation 1107/2009 on the permitting of plant production products restricts the use of EDCs in agriculture. As there is no certain criteria for EDC, the *Commission has to present specific scientific criteria for the determination of endocrine disrupting properties by 14 December 2013*. PAN-Europe in 2009 presented a first position paper³⁵ to Commission on the criteria to be developed. Industry pushes very hard (ECETOC) proposing criteria which will in effect undermine the EU-"cut-off" criteria and return policy to full risk assessment.

Cumulative and synergistic effects of pesticides

It is usual that the effect of two or more chemical substances on an organism is different or greater than the effect of each chemical individually, or the sum of the individual effects³⁶. Cumulative and synergistic effect is when the presence of one chemical enhances the effects of the second. Risk assessment for harmful substances is done for decades now on a substance-by-substance basis³⁷. For a scientific point of view this is a fundamentally flawed approach since in everyday life no-one is exposed to a single substance but to a multitude of substances at the same time through body burden, home, food, air, personal care, etc.

USA was the first to include cumulative risk assessment in legislation in a revision of the FQPA in 1996. PAN-Europe and its members have been trying to include cumulative risk assessment in decision-taking for many years. Methods to assess the effects are readily available in open literature for years. Finally in 2005 the EU revised the Residue Directive and changed it into a Regulation (396/2005) and made cumulative risk assessment mandatory "as soon as methods to assess such effects are available" (art. 14.2.b). EFSA is the scientific body of the EU to advise on methods. EFSA is supposed to develop a framework, however, up to now, the framework is missing. Others have more worries about cumulative effects than EFSA has. A Danish communication on cumulative effects of chemicals for children was adopted in Environmental Council October 2009. DG Environment also is worried more than EFSA and commissioned Prof. Kortenkamp to do a state-of-the-art review on cumulative and synergistic effects of chemicals. He urges EU to install binding regulation for all chemicals, not only pesticide residues, and move quickly to assess the risks because the methods to do so are available.

2.2 DIRECTIVE ON THE SUSTAINABLE USE OF PESTICIDES

The EU adopted a framework directive on the sustainable use of pesticides (**Directive 2009/128/EC of 21 October 2009**) in 2009. According to PAN Europe, the most important measures to reduce pesticide dependency in accordance with the new framework directive, beyond setting quantitative use reductions, are³⁸:

31 http://en.wikipedia.org/wiki/Endocrine_disruptor

32 <http://www.greenfacts.org/en/endocrine-disruptors/endocrine-disruptors.htm>

33 List of 66 substances with classification high, medium or low exposure concern ec.europa.eu/environment/docum/pdf/bkh_annex_15.pdf

34 pan-europe.info/Campaigns/chemicals/ed_pesticides.html

Nissanka Rajapakse, Elisabete Silva, and Andreas Kortenkamp, Combining Xenoestrogens at Levels below Individual No-Observed-Effect Concentrations Dramatically Enhances Steroid Hormone Action, *Environmental Health Perspectives* 110 (9), September 2002

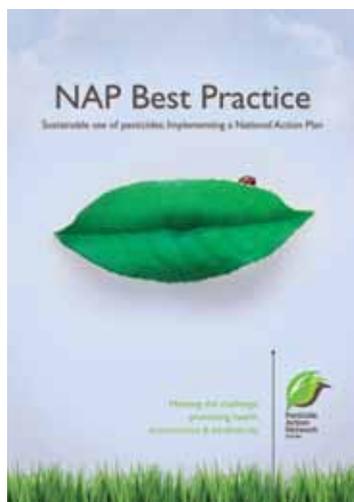
35 pan-europe.info/Campaigns/chemicals/documents/ed_pesticides/PAN,%20General%20strategy%20on%20ED%20pesticides.doc

36 msds.chem.ox.ac.uk/glossary/synergistic_effect.html

37 www.pan-europe.info/Campaigns/chemicals/cum_syn_effects.html

38 www.pan-europe.info/Campaigns/NAPs.html

1. Member states shall set up and **communicate National Action Plans** (NAP) to the Commission and to other MS by 25 November 2012.
2. **Implementing IPM**, for all EU farmers to apply from 2014, so *"professional users of pesticides switch to practices and products with the lowest risk to human health and the environment among those available for the same pest problem."* (Article 14.1). The importance is to give priority to preventative elements.
3. **Giving priority to non-chemical alternatives:** *"Member states shall take all necessary measures to promote low pesticide-input pest management, giving wherever possible priority to non-chemical methods."*(Article 14)
4. Ensure that pesticide use is **minimized or prohibited in specific areas** (Article 12).
5. Establishing **appropriately-sized buffer zones** to protect non-target aquatic organisms and safeguard zones for surface and groundwater used for the abstraction of drinking water, where pesticides must not be used or stored (Article 11).



National Action Plans (NAP) on the sustainable use of pesticides

Directive 2009/128/EC, Article 4 says that: *"Member states shall adopt National Action Plans to set up their quantitative objectives, targets, measures and timetables to reduce risks and impacts of pesticide use on human health and the environment and to encourage the development and introduction of integrated pest management and of alternative approaches and techniques in order to reduce dependency on the use of pesticides. These targets may cover different areas of concern, for example worker protection, protection of the environment, residues, use of specific techniques or use in specific crops."*

The quality of NAPs and its implementation really depends on the individual member states. It is crucial that all relevant stakeholders, including health and environmental NGOs, water companies are involved in the preparation of the NAPs.

The aim of the action plan must be to minimize pesticide dependence in food production, and to reduce risks posed by pesticides to human health and to the environment.

PAN Europe prepared a guide to assist and support EU member states in producing their National Action Plans (NAP) as required under the Sustainable Use Directive: http://pan-europe.info/Resources/Reports/NAP_best_practice.pdf

2.3 PRIORITY SUBSTANCES UNDER THE WATER FRAMEWORK DIRECTIVE

Article 16 of the Water Framework Directive (2000/60/EC) sets out a "Strategy against pollution of water", outlining the steps to be taken³⁹. The first step of the strategy was the establishment of a First list of priority substances an Annex X of the WFD. This was later replaced by the Directive on Priority Substances (2008/105/EC), which sets environmental quality standards (EQSs) for 33 substances⁴⁰. Many of these substances are pesticide active ingredients⁴¹. In 2010 the commission recommended adding new water quality standards for another 20 substance and to update existing standards.

An EU study⁴² published in September 2011 found that pesticides show much higher risk to the environment than it was expected. 74% of the chemicals that were identified as being potentially high and very high risk were pesticides. The Commission press release states that the result of this study does not correspond with the EU-wide priority substances currently listed under the WFD.

39 ec.europa.eu/environment/water/water-dangersub/pri_substances.htm

40 New water quality standards to be tabled shortly, ENDS Europe, Monday 15 August 2011 www.endseurope.com/26925/new-water-quality-standards-to-be-tabled-sho-rtly?referrer=bulletin&DCMP=EMC-ENDS-EUROPE-DAILY

41 ec.europa.eu/environment/water/water-framework/priority_substances.htm

42 ec.europa.eu/environment/integration/research/newsalert/pdf/253na3.pdf

2.4 THE COMMON AGRICULTURAL POLICY TOWARDS 2020

European Commission plans to reform the Common Agriculture Policy (CAP) and to discuss environmental and agro-ecosystem measures. Support and protection of natural services (as pollination) will be kept as a dominant priority of the new Rural Development Programs of 2014 – 2020. This legislation will govern how farmers are subsidized in the future. NGOs are worried⁴³ that in the upcoming proposal measures to protect the environment and public health will be watered down. The CAP Communication by the Commission from November 2010 seemed to ensure that farmers only receive subsidies if they implement a number of environmental and public health measures. The more detailed plans in autumn 2011, according to the drafts, have been weakened with no guarantee that they will improve biodiversity, public health or the climate. What is needed to green the CAP is first making sure that:

- the so-called cross compliance rules will make it mandatory for all farmers to respect the water framework directive and the directive on sustainable use on pesticides also;
- that the so-called green component, a new element of the CAP, guarantee that all farmers across the EU provide a simple mandatory package of measures like crop rotation, green cover, environmental set aside as compulsory for farmers to get their direct payments., and that member states as part of the rural development policy, encourage farmers on a voluntary basis to provide even better agricultural practices to prevent the pest from coming, and encourage farmers to use biological control.

One of the most effective measures to protect the environment is the rotation of crops on the same field. Proper crop rotation, for example on maize fields including a leguminous crop like peas, beans or clover would not only increase farm diversity and benefit wildlife, it would also help to reduce pesticide dependency and as a result pollinators and citizen health.

Crop rotation also benefits soil fertility, reduces fertilizer use and as a result, helps to reduce green house gas emissions. Crucially, encouraging farmers to grow more protein animal feeds as part of the rotation would reduce Europe's dependency on imported soy, a major cause of deforestation, climate emissions and social disputes in South America. Crop rotation is also a key to combat climate change.

PAN and Friends of the Earth Europe were calling on the Commission in their 2011 September press release for the introduction of strict mandatory environmental, public health and social conditions for direct payments and further support for cultivation and use of home grown protein plants for animal feeds in the legal texts. The minimum of green basis should include:

- Ensuring that all EU farmers apply a package of measures as part of the greening component, and not as it stands now risk to be another voluntary top up;
- Within this, crop rotation including legume crop to be introduced where possible as a compliment to crop diversification.

Strategic approach will be to wait for the end of October having final European Commission CAP proposal in hand and report it here, will be of great added value, however it will be followed by EP approval.

43 levego.hu/en/news/2011/09/draft_common_agricultural_policy_legislation_proposals_green_washing_rather_than_real_g

3. AGROWATER PROJECT

Since EU accession water pollution came under stricter control from industry and from sewage, agriculture became the largest water polluter in the region. Clean Air Action Group from Hungary and Slovak NGO Centre for Sustainable Alternatives (CEPTA) started project AGROWATER (HUSK/0901/2.1.2/0076) supported by Hungary-Slovakia Cross-border Cooperation Programme 2007-2013. The project is focused on good agriculture practice preventing water pollution, including water samples and analyses, as well as ecotoxicological analyses of soil taken from different farming practices – conventional, integrated and organic, then training and publishing different infomaterials. The aim of the project activities is to decrease water pollution coming from the agriculture sector.

PARTICIPANTS

Clean Air Action Group (CAAG)

The Clean Air Action Group (CAAG) is one of the best-known environmental NGOs in Hungary. Founded in 1988 by three local green groups, it is now a national federation of 127 NGO's. Its Experts' Board consists of more than 100 specialists of various professions. It is open to anyone who wants to help clean up the environment.

- Our main fields of activities are the following:
- greening the state budget,
- sustainable transport,
- sustainable energy policy,
- sustainable urban development,
- protection of green areas in cities,
- clean air in the cities,
- sustainable chemical and pesticide use.

The activities of CAAG include public awareness campaigns, consulting, publishing and advocacy at the local and national levels. CAAG is a member organization of the European Environmental Bureau, Pesticide Action Network, Climate Action Network Europe, European Environmental Citizens Organization For Standardization, European Federation For Transport And Environment, Health & Environment Alliance (HEAL), International POPs Elimination Network (IPEN) and World Carfree Network.

CEPTA - Centre for Sustainable Alternatives, civil association

Under the concept of sustainable life we understand living in sincere understanding, in fulfilling common goodness and in not limiting future generations' possibilities. It is a life in full responsibility for our acts, words and ideas and with the aim of long-lasting harmony with nature and other human beings.

The civil association CEPTA was founded in 2005 as the association of people who engage in different activities such as environmental protection, nature protection, support of civil participation, healthy lifestyle and sustainable alternatives to present consumer lifestyle.

Main activities and campaigns:

- Greening of traditional agriculture and rural development.
- Reduction of pesticides in food, in the environment and increase of food security.
- Support of local and regional production-consumption chains and direct selling.
- Development of waste production prevention and creation of sustainable economic environment for separation, recycling and recovery of waste.
- Air quality protection, soot removal from urbanized environment.
- Negative effects elimination from intensive biofuels production.
- Development of cultural and educational activities and free time activities for young people.
- Promotion of sustainable economics of the back end of nuclear power.

PAN Europe

PAN Europe is a network of NGO campaign organizations working to minimize negative effects and replace the use of hazardous chemicals with ecologically sound alternatives.

Our network brings together consumer, public health, and environmental organizations, trades unions, women's groups and farmer associations from across 19 European countries. We work to eliminate dependency on chemical pesticides and to support safe sustainable pest control methods.

What does PAN Europe do?

PAN Europe has traditionally focused on getting harmful pesticides banned. This is still essential as governments' pesticide evaluation lags behind product development by many years and Europe's pesticide approval process has yet to tackle new concerns like endocrine disruption and increased sensitivity among children and fetuses. We have also seen that the latest generation of pesticides marketed by chemical companies are not appreciably safer for the environment or our health. So replacing old pesticides with new won't do much to reduce risks. PAN Europe is therefore stressing that better agricultural practices and management are the best way of ensuring sustainability and high food quality.

Why is the fight on pesticides and biocides important?

Much of the harm to our health caused by pesticides is only known to us through the relatively scarce body of research and the poor and inconsistent record of health effects. According to the Commission Communication on the Sixth Environmental Action Programme, there is sufficient evidence to suggest that the scale and trends of problems caused by pesticides are serious and growing. Possible harm to our health includes immunological effects, endocrine disrupting effects, neurotoxicological disorders and cancer. This raises the concern, for instance, about the high prevalence of reproductive disorders in European boys and young men and about the rise in cancers of reproductive organs. Research indicates a strong connection with environmental pollution and the continuous exposure to low levels of a large number of endocrine disrupters acting accumulatively.

4. CONTACTS



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EPUC

An Effective Pesticide Use, Control and Financing system for the EU

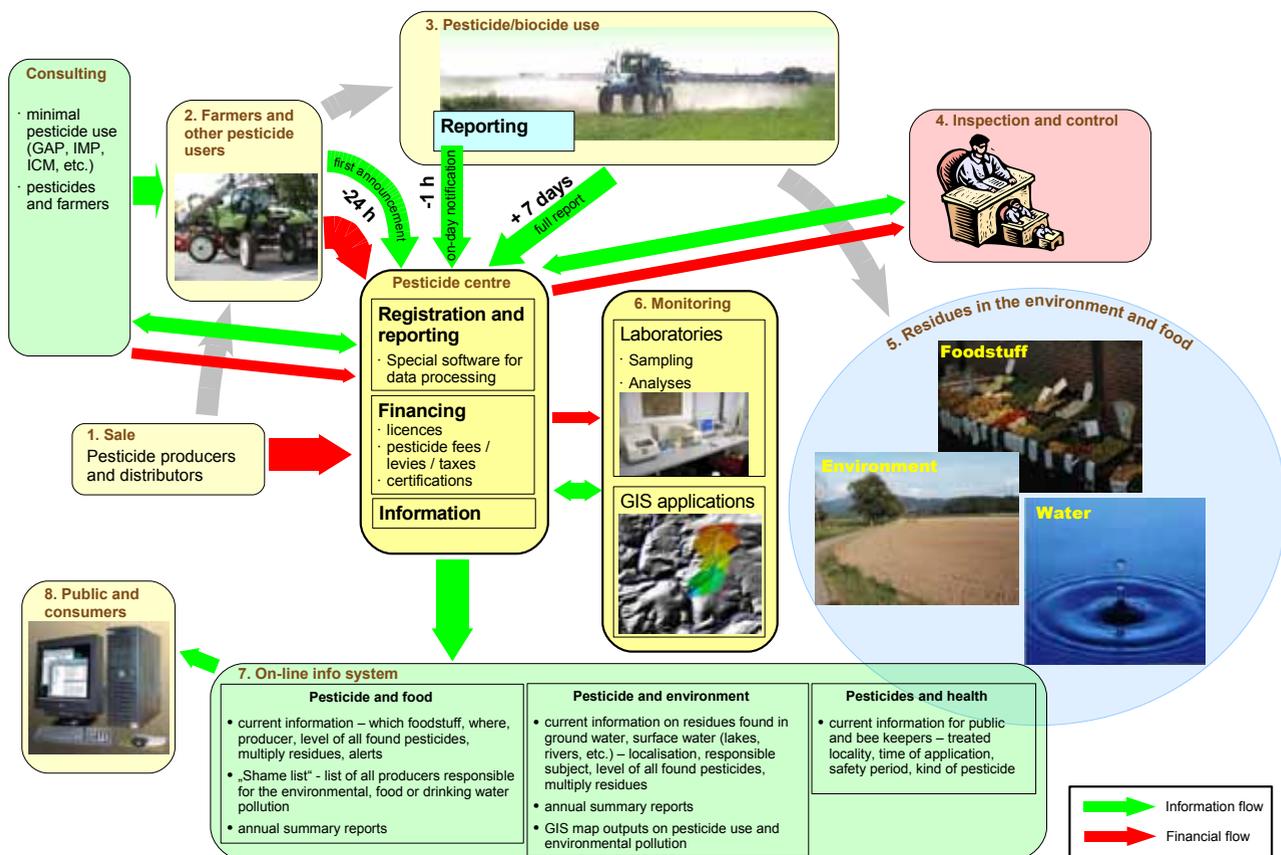
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The EU adopted on 12th June 2006 "A Thematic Strategy on the Sustainable Use of Pesticides" [1]. Despite some improvements, there is criticism on weak protection of environment, natural ecosystems and consumers.

The EPUC system is the model, which brings systematic improvements in several areas of the EU policy:

- **reporting system**, based on time, place and specification of used pesticide product from pesticides users/farmers, which allows an effective monitoring and control of pesticides.
- **self-financing system**, which brings enough means from pesticides beneficiaries to cover all necessary costs relating to monitoring, control, etc.
- **on-line information system**
- **independent consulting** focused on pesticides prevention and minimization, Best Agriculture Practice (BAP); Integrated Pest/Crop Management (IPM/ICP).



Financing:

Funding of the EPUC system would be achieved by using of one or a combination of the following resources:

- a fund for pesticide reduction resulting from a fee, levy or tax on the pesticide products;
- paid time-limited license for pesticide products; for applicators; for spray equipment;
- fines and penalties (food safety fund).

In several countries, there already exist different systems that bring sources covering costs, related to pesticides control and consulting, and which do not charge national budgets (tax-payers).

Sources:

[1] <http://ec.europa.eu/environment/ppps/home.htm>

More information on the EPUC system can be found in the briefing on www.cepta.sk/index.php?option=com_content&task=view&id=69&Itemid=213.

More information on sustainable pesticides use, BAP, IPM can be found on PAN-Europe pages www.pan-europe.info.

Acknowledgement

The poster was made under the terms of the project "Towards More Sustainable Pesticides Use and Transparency", which was kindly supported by the Global Greengrant Fund (GGF).

Present pesticide taxation

Country	pesticide tax/fee/levy systems	Country	pesticide tax/fee/levy systems
Sweden	an environmental levy 3.25 € per kg of AS	Italy	flat tax 0.5 % from final price tax to all domestic pesticide products with the risks: R33, R40, R45, R60 flat tax 1 % from final price to all import pesticide products
Denmark	different taxation due to different amount applied per hectare • insecticides – 54% of retail price • herbicides, growth regulators and fungicides – 33 % of retail price	UK	annual levy - based on annual turnover of approved pesticides products, and is charged to the agrochemical industry fees for evaluation of specific pesticide approval applications
Norway	banded tax system - based on toxicity of the pesticide products • low toxicity products - 2.6 €/ha • medium toxicity products 10.4 €/ha • high toxicity products 20.8 €/ha	California	Milli fee • 1 Milli = 0.001 \$ from every dollar of sold registered pesticide products • level of the fee: 21 Mills = \$0.021 (0,016 €)
Belgium	taxation based on toxicity of the pesticide and biocide products • level of the tax is determined by total annual budget estimated for the PUR programme		

Country	Annual yield of taxation
Sweden	Environmental levy: 6.5 mill € - 5.0 €/ha of treated land
Denmark	Pesticide tax: 50.3 mill € - 23.7 €/ha of treated land
UK	Levy: 5.7 mill € Fees: 4.4 mill €
California	Milli fee: 36.0 mill € - 3.3 €/ha of treated land

AS – Active Substance
PUR – Pesticide Use Reduction

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