

PAN
Germany

Pesticide Action Handbook

**A Guide for Central
and Eastern European NGOs
...and others**

CAS Number	Use Type	WHO	Symbol	T+	EU Classification	IARC	U.S EPA	EU Muta	Risk Phrase	Cancer Classification	ADJ mg/kg/bw
41083-11-8	AC	II	U								0.007
18181-80-1	AC	II	U								0.03
74115-24-5	AC	III	U								0.03
13121-70-5	AC	III	U								0.03
120928-08-8	AC	III	U								0.03
13358-08-8	AC	III	U								0.03
111812-88-9	AC	III	U								0.03
78807-05-9	AC	III	U								0.03
2312-35-8	AC	III	U								0.03
119-82-77-3	AC	III	U								0.03
116-28-3	AC	III	U								0.03
39300-45-3	AC	III	U								0.03
101007-08-1	AC	III	U								0.03
101-41-1	AC	III	U								0.03



Hamburg, 2003

Pesticide Action Network (PAN)

Founded in 1982, the Pesticide Action Network is an international coalition of over 600 citizen groups in more than 60 countries working to oppose the misuse of pesticides and to promote sustainable agriculture and ecologically sound pest management.

PAN Germany was established in 1984 as part of this global network and has continually been involved in initiatives to reduce the use of hazardous pesticides and to promote sustainable pest management systems on national, European and global level.

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22765 Hamburg, Germany
phone: +49-40-399 19 10-0
fax: +49-40-390 75 20
Email: info@pan-germany.org
website: www.pan-germany.org

Edited by Susanne Smolka
Preface by Carina Weber (Executive Director PAN Germany)
Principal Author: Lars Neumeister

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List of Acronyms

ADI	Acceptable Daily Intake
CAP	Common Agricultural Policy
CDC	Centers for Disease Control and Prevention
CEECs	Central and Eastern European Countries
CEFIC	European Chemical Industry Association
CMRs	Carcinogenic or Mutagenic or toxic for Reproduction
COREPER	Committee of Permanent Representatives
DPR	Department of Pesticide Regulation
EAP	Environmental Action Programme
EC	European Commission
ECB	European Chemical Bureau
EDs	Endocrine Disruptors
EEA	European Environmental Agency
EFSA	European Food Safety Authority
EFTA	European Free Trade Area
EPA	Environmental Protection Agency
FAO	Food and Agricultural Organisation
GAP	Good Agricultural Practice
GMO	Genetically Modified Organism
IARC	International Agency of Research on Cancer
ICM	Integrated Crop Management
ICSCs	International Chemical Safety Cards
IPM	Integrated Pest Management
JMPR	Joint Meeting on Pesticide Residues
MRL	Maximum Residue Levels
NOECs	No Observed Effect Concentration
OPP	Office of Pesticide Programmes
PIC	Prior Informed Consent
POPs	Persistent Organic Pollutants
PTDI	Provisional Tolerable Daily Intake
UNEP	United Nations Environmental Programme
USDA	U.S. Department of Agriculture
WFD	Water Framework Directive
WHO	World Health Organisation

1 Preface

Founded in 1982, the Pesticide Action Network (PAN) is a network of over 600 participating non-governmental organisations, institutions and individuals in over 60 countries working to replace the use of hazardous pesticides with ecologically sound alternatives.

PAN Germany was established in 1984 as part of the global Pesticide Action Network. Jointly with PAN UK, PAN Germany is facilitating organisation of PAN Europe. On European level, one of the key activities of PAN Germany is to promote pesticide use reduction in Central and Eastern European Countries (CEECs).

In future the conditions of implementing sustainable systems of pest management in CEECs will strongly be influenced by the EU pesticide policy. On the other hand activities of public interest groups in CEECs could have a positive influence on the legal and political conditions for implementing sustainable pest management systems in Europe. In Brussels there are supportive political initiatives but unfortunately the implementation is slow and sometimes even counterproductive. In addition, the involvement of non-profit non-governmental organisations (NGOs) needs to be strengthened, especially in CEECs.

In 1993 the Fifth Environmental Action Programme (5th EAP) called on the EU to achieve a substantial reduction of pesticide use per unit of land under protection before the year 2000. But despite this political objective, current European pesticide consumption data (Eurostat) show, that there is rather a tendency towards an increase.

The Sixth Environmental Action Programme (6th EAP), covering the period 2001 - 2010, also recognises the need for Community-level action to address pesticide-related problems. It calls for action to reduce the impacts of pesticides on human health and the environment. More generally it calls to achieve a sustainable use of pesticides as well as a significant overall reduction in risks from pesticide use. The 6th EAP lists different activities to be carried out, among others, to draw up a 'Thematic Strategy on the sustainable use of pesticides' that ends the current irresponsible failure to protect human health and the environment from pesticide use.

In May 2002, the European Parliament requested the Commission to publish a proposal for a Directive, establishing a programme for pesticide use reduction before July 2003. At the same time, PAN Europe published a suggested text for a Directive on pesticide use reduction in Europe (PURE). This draft directive is meant to constitute an important part of the Thematic Strategy.

Up to now a Commission proposal for a Directive has not been published. Referring to the Thematic Strategy, the European Parliament has already criticised the Commission for its lack of ambition (EP Resolution, 31 March 2003). In addition various public interest groups like PAN Germany and other environmental, public health, consumer and farmer groups demand mandatory EU action with clear goals, targets and timetable for pesticide use reduction and the increase of organic farming and integrated crop management systems.

Obviously more activities are needed to implement the goals of the 5th and 6th EAP. PAN Germany believes that sustainable systems of pest control and food production - which are available - can only be implemented if non-profit NGOs are a strong part of the strategy - in all parts of Europe. This Handbook makes the EU pesticide policy more transparent in order to facilitate NGOs in central and eastern European countries and also in other regions of Europe.

2 Introduction

Pesticides are a special group of chemicals, they are developed and intentionally released into the environment to harm living organisms. Besides the desired effects in crop protection and pest management, pesticides may have adverse effects on human health via their contamination of food, ground waters, soils and even the air as well as on environmental health and biodiversity.

There is sufficient evidence to suggest that the scale and trends of problems caused by pesticides are serious and growing in the European Union. Particular concerns include the contamination of groundwater and foodstuff, and the continuing accumulation of certain pesticides in plants and animals. The effects of small quantities of pollutants that accumulate in human bodies and combined effects are poorly understood. In order to protect vulnerable groups such as children and the elderly the precautionary principle needs to be incorporated into the legal framework addressing pesticides.

The current discussions and decisions on pesticide authorisation and pesticides use reduction strategies will have impacts on other policy areas such as environmental protection, consumer health and agriculture. In order to ensure high levels of the protection of human health and the environment, and to strive towards sustainable agriculture non-profit NGOs all over Europe need to be strengthened. There must be more awareness, co-operation and co-ordination. This is especially true for NGOs in EU accession countries.

Pesticide use in accession countries was very low in the last 10 years, but is on the rise again. The accession into the European Union will most likely intensify agriculture. There is much fear that traditional means of farming will be replaced by industrial farming systems with a high dependency on agrochemical usage with all its negative side effects.

In order to meet the challenges of the EU accession the capacities of Central and Eastern European NGOs need to be raised. They need knowledge about pesticide hazards and the current discussion and activities regarding pesticide policy in the EU.

This Pesticide Action Handbook was developed by PAN Germany to serve other NGOs for these purposes.

There are hundreds of books and websites on the impacts of pesticides, their environmental fate, and their regulation. This handbook tries to give an overview about the issue of pesticide use to interested organisations in Europe. The first chapters shortly explain some pesticides basics and the problems chemical pesticide use can cause. Then international and European approaches to prevent pesticide hazards are described. Lobbying in the EU and policy needs are presented in the last sections.

The Pesticide Action Handbook is part of PAN Germany's CEEC project.

*There is a series of additional publications on agriculture and pesticide usage in **Hungary, Poland, Slovenia and the Czech Republic (1-4)**.*

These four publications focus on agriculture and pesticide use in these countries and provide an evaluation of authorised pesticides regarding their human and environmental toxicity.

For all four countries pesticide fact sheets will be provided by PAN Germany soon.

*Publications on the **PIC** and **POPs** Convention were published by PAN Germany in English, German and Russian (5, 6).*

*All publications are available at:
www.pan-germany.org*

3 Pesticide Basics - Use Causes Risks

The term “pesticide” is used as a general term to represent any chemical substance used to control pests and weeds. The major classes of pesticides include herbicides, used to kill plants; insecticides, used to kill insects; fungicides, used to prevent molds and mildews; and fumigants, used to sterilise soils and in urban pest control. In this handbook, the term pesticide usually refers to the active ingredient of a pesticide product or formulation. A pesticide product applied by farmers or other users usually contains one or more active ingredients and so called ‘inert’ ingredients, substances, which enhance the effect of the active ingredient.

Pesticides are not only applied in agriculture. In the EU some 230 pesticide active ingredients are also used in biocidal products, such as mosquito sprays, flea ticks, flea collars, wood preservatives and anti-moulding paints (8). In addition, home and garden owners may use pesticides or fertilizers containing pesticides.

Once a pesticide is applied its environmental fate cannot be controlled any more. Depending on the pesticide and environmental conditions such as oxygen, sun light, wind, temperature, moisture, soil activity, soil type etc. pesticides can make their way even to far remote places. They are transported by wind, evaporation, run-off, ground water, stream and rivers, and within human and animal tissue. A pesticide usually degrades after application to one or several metabolites, which can have other toxic and chemical properties than the parent chemical. In many cases metabolites are more stable and more toxic than the parent chemical.

While information about active ingredients is available, the ‘inerts’ are mostly toxic secrets. Due to patent and competition issues, only the pesticide manufacturer and partly governmental agency registering pesticides, know the exact formulation of a specific product. ‘Inerts’, however, are not necessarily non-toxic. The ‘inerts’ *nonyl phenol* and *methylene chloride* for example are classified as priority hazardous substances by the EU Water Frame Work Directive. Methylene chloride is also classified as probably carcinogenic by U.S. EPA (9). In many cases more than 50% of a pesticide product are ‘inerts’. These 50% unknown chemicals are released into the environment, but since nobody knows what they are, their residues are usually not tested in food and the environment.

Girl died after eating ant powder

Sharna an eight-year-old girl was playing outside with some other children one August day in 2000 in St Leonards on Sea, in Sussex (UK). One of the children was given some Doff ant powder which they sprinkled on ants nearby. Sharna was seen licking her hand which was covered in white powder. That evening she began to be sick and later died in hospital.

Doff ant powder contains only a low level of lindane. Sharna consumed much less of the chemical than the amount which, until now, scientists thought to be the lethal dose for a child. This was previously thought to be about a third of a bottle of this product. But Sharna had less than a teaspoonful (7).



Photo: Jennifer Bates, © Friends of the Earth

4 Pesticides and Human Health - Classification instead of Precaution

Pesticides are created to kill or repel living organisms. They do not act the same way, furthermore they vary in their uptake, mode of action, metabolism, toxicity, and elimination from the body. People are exposed to pesticides via several ways: food, air, drinking water and dust. Assessment of multiple exposure to this chemical cocktail is almost impossible, a non-exposed control group does not exist. Today's risk assessment usually focuses on one chemical tested on a few animal species. Results of such tests are gathered, reviewed, and finally expert groups put the chemical into categories. These categories have to be interpreted with caution, especially the extrapolation from animal test to human beings is an unreliable vehicle. The functioning of our nervous or endocrine system is not fully investigated, proven is that chemicals can interfere with these systems. Pesticide exposure to an unborn child may show effects later in life, but investigation of such coincidences is hardly practicable (10).

Toxicological classifications are useful to identify more hazardous pesticides in comparison to others, but for the protection of human health the precautionary principle must apply, and society must aim at the prevention of the exposure of people to dangerous substances.

The term human toxicity defines the different types of chronic and acute toxicity pesticides cause in humans, including cancer, reproductive and developmental toxicity, effects on the hormone and nervous system.

Acute effects can present numerous symptoms, including respiratory problems, nervous disorders, and aggravation of pre-existing conditions such as asthma. Symptoms range from mild irritation to death.

Various international established criteria for the evaluation of the human toxicity exist. The generally accepted "Recommended Classification of Pesticides by Hazard and Guidelines to Classification" published by the World Health Organisation (WHO) presents a list of some 600 pesticides and their acute toxicity in 5 categories. The WHO also publishes *acceptable daily intake* (ADI) values, which are supposed to be the amount of a pesticide a person can consume over life time without harm. This amount is expressed in mg/kg body weight and needs to be interpreted inversely. The lower the value the more toxic is the compound. ADI values exist for some 340 pesticides.

The International Agency of Research on Cancer (IARC) a institution of the WHO publishes monographs on the carcinogenicity of natural and human made compounds. The series on monographs started in 1972 and since then some 870 agents, about half of them are pesticides have been reviewed and classified in one of the 4 categories.

In the European Union, the major legislative framework in force dealing with the classification of dangerous substances and preparations are Council Directive 67/548/EC and Council Directive 99/45/EC on the approximation of laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances, and dangerous preparations, respectively. Classification and labelling involves an evaluation of the hazard of a substance and the preparation. This evaluation must be made for any substance or prepara-

Children at Risk

Children under the age of 10 are among the groups most vulnerable to food- and waterborne diseases. The possible health consequences of exposure to pesticide residues and chemicals potentially present in the environment, food and water include immunological effects, endocrine disruption, neurotoxic disorders and cancer (11).

tion manufactured within or imported into the EU and placed on the EU market, and results in a classification of the substance/preparation as dangerous for one or several end-points concerning physical-chemical properties, health or environmental effects.

The EU classification and labelling system combines danger symbols with descriptive risk phrases for acute as well as subchronic and chronic toxicity. Categories for mutagenic, carcinogenic and reproductive effects have been composed as well. The symbols and risk phrases describe following effects:

- acute toxicity (lethal and irreversible effects after a single exposure)
- subacute, subchronic or chronic toxicity
- corrosive and irritant effects
- sensitising effects
- specific effects on health (carcinogenicity, mutagenicity and reproductive toxicity).

The U.S. Environmental Protection Agency (U.S. EPA) maintains a list of chemicals evaluated for carcinogenic potential. Over the years different categories were established, since 1999 five categories ranging from “Carcinogenic to humans” to “Not likely to be carcinogenic to humans” are applicable (9).

Classification systems do not exist for adverse effects on the hormonal system described as endocrine disruption, and for effects on the nervous system, such as cholinesterase inhibition. While endocrine disruption cannot be associated with a specific chemical class, cholinesterase inhibition, is the common mechanism of organophosphates and N-methyl carbamates.

Resources to human toxicology of pesticides and chemicals:

IPCS INCHEM is a means of rapid access to internationally peer reviewed information on chemicals commonly used throughout the world, which may also occur as contaminants in the environment and food. The homepage links to the IARC and the WHO classifications, to the International Chemical Safety Cards (ICSCs) and to the JMPR (Joint Meeting on Pesticide Residues) - monographs and evaluations: www.inchem.org

Online database maintained by Pesticide Action Network North America. World wide the most comprehensive online database on pesticides: www.pesticideinfo.org

Pesticides and Health, A Resource for Health Care Professionals by the Physicians for Social Responsibility explains very good all health impacts of pesticides and provides an number of cases: http://www.psrla.org/pesticides/pesticides_and_health_kit.pdf

European Chemical Bureau responsible for Directive 67/548EC and 99/44EC as well as for biocides. <http://ecb.jrc.it> Classification of substances in Annex I of Directive 67/548EC is online available under: [N-CLASS Database on Environmental Hazard Classification](#)

PAN United Kingdom briefing papers cover pesticides and health, pesticides around us, control over pesticides, pesticides and farming & pesticides in food. Briefings regarding pesticides and health: The List of Lists; Background Papers; Unsafe sex: how endocrine disruptors work available under: <http://www.pan-uk.org>

The California Department of Pesticide Regulation (DPR) website lists some 386 chemicals and allows access to Toxicology Data Review Summaries in form of Acrobat Reader pdf files: www.cdpr.ca.gov/docs/toxsums/toxsumlist.htm

Health and Safety information has been collected on over 2000 chemicals studied by the U.S. National Toxicology Program: <http://ntp-server.niehs.nih.gov/default.html>

Recognition and Management of Pesticide Poisoning is published by U.S. EPA's Office of Pesticide Programs. Explains the mode of action of common pesticide groups and treatment possibilities: www.epa.gov/pesticides/safety/healthcare/handbook/handbook.htm, the homepage of the U.S. EPA's Office of Pesticide Program offers a large amount scientific and general information: www.epa.gov/pesticides

Communication from the European Commission to the Council and the European Parliament on the implementation of the Community Strategy for Endocrine Disruptors, website of DG Environment: http://europa.eu.int/comm/environment/docum/01262_en.htm

Selected world wide web resources on endocrine disruptors maintained by the National Resources Defence Council (NRDC): www.nrdc.org/health/effects/bendres.asp

Endocrine disruptor web site of U.S. EPA: www.epa.gov/scipoly/oscpendo/index.htm

Complete online book "Hormonally Active Agents in the Environment" (2000), 430 pages: www.nap.edu/books/0309064198/html

Our Stolen Future - the leading work on the emerging scientific knowledge about hormone disruption: www.ourstolenfuture.com

5 Pesticides in the Environment - Living with Uncertainties

Pesticides can be released into the environment in many ways. Through runoff from fields they make their way into ditches, rivers, lakes. Eventually, they reach the oceans through the water cycle. They may also leach into groundwater, which is then discharged into streams or is subsequently used for irrigation. Drift, evaporation and precipitation carry pesticides into both, nearby and far habitats. Via the food-chain accumulated in animal tissue, they can travel far distances and arrive at places in which they were never applied. Entire ecosystems are effected by the use of pesticide. Birds, mammals, insects and all other living creatures are poisoned either directly or indirectly by feeding upon poisoned

food. They also experience reductions in food supply and habitat for both, themselves and their prey due to the extensive use of pesticides. Pesticides have always been developed to do harm, and the chemical input into the environment is more pervasive and insidious than any other impact humans have had on their habitat. The fate and functioning of chemicals in the environment is still unknown to a great extent. The occurrence of multiple chemicals and their reactions with each other is another serious gap in the knowledge of modern science. Environmental symptoms such as a shift in sex ratios, cancer in wildlife animals, impaired fertility and/or other physical abnormalities can barely be explained at the current stage of scientific knowledge. The few toxicity tests implemented for the pesticide registration process such as testing of the lethal or effect concentration on 1 to 3 bird species, fish species or waterfleas do not mimic reality at all (12, 13).

The European Union Directives 67/548/EC and 99/45/EC also evaluate and classify dangerous substances and preparations according to their environmental toxicity. The present criteria of this classification refers to aquatic ecosystems, but it is acknowledged that certain substances may affect other ecosystems as well.

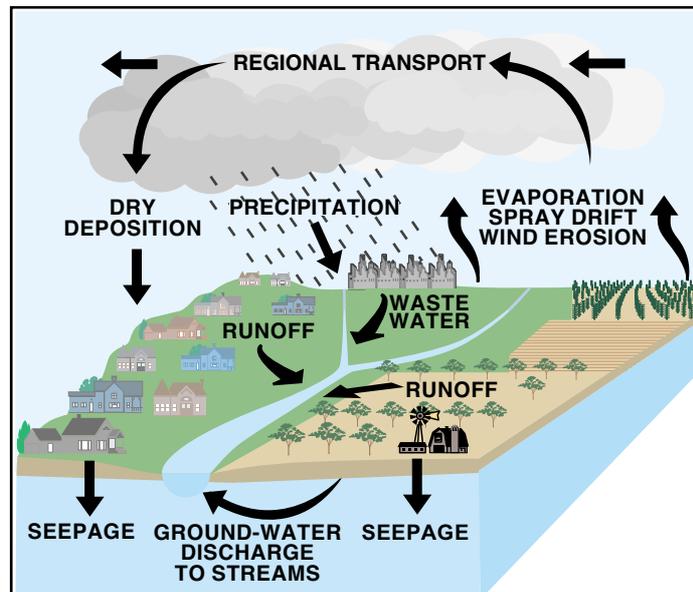


Figure 1: Pesticides do not remain where they are applied and are transported through air and water (reproduced with permission of the U.S. Geological Survey).

Resources to pesticides and environment:

Online database maintained by Pesticide Action Network North America. World wide the most comprehensive online database on pesticides: www.pesticideinfo.org

European Chemical Bureau responsible for Directive 67/548EC and 99/44EC as well as for biocides. <http://ecb.jrc.it> Classification of substances in Annex I of Directive 67/548EC is online available under: [N-CLASS Database on Environmental Hazard Classification](#)

The U.S. EPA ECOTOX database provides single chemical toxicity information for aquatic and terrestrial life. ECOTOX is a useful tool for examining impacts of chemicals on the environment: www.epa.gov/ecotox

The EXTension TOXicology NETwork (EXTOXNET) is an effort of University of California, Davis, Oregon State University, Michigan State University, Cornell University, and the University of Idaho. Pesticide Information Profiles (PIPs) are documents which provide specific pesticide information relating to health and environmental effects: <http://ace.orst.edu/info/extoxnet>

USGS Toxic Substances Hydrology Program provides objective scientific information to improve characterization and management of contaminated sites, to protect human and environmental health, and to reduce potential future contamination problems: <http://toxics.usgs.gov/>

6 The Precautionary Principle - Objective and Reality

The history of pesticides and their impact on human health and the environment is a history of uncertainties. Risk assessment usually tries to define the magnitude of a particular risk we will accept. The immense uncertainties regarding individual sensitivity, synergies and interactions of multiple exposure are ignored and not made public.

Attending a workshop on children's exposure to house and garden pesticides is quite an interesting experience. All these experts counting the hand-to-mouth behaviour of a toddlers and calculating pesticide loads in house dust ignore the simplest way to protect children's health. To avoid pesticide use in children's environment.

Is it necessary to rely on expert groups fed by industry data telling the public what risks are acceptable? Are there no alternatives?

The precautionary principle is about avoidance of harm, and it also is about avoidance of uncertain harm.

In 1992, the United Nations Environmental Programme put the precautionary principle in its Rio Declaration:

"In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation (14)."

This declaration is a soft law instrument which does not create legally binding obligations (16). First legal attempts to address the precautionary principle in global pesticide policy are two international conventions.

Precautionary Principle vs Risk assessment

Risk assessment tries to determine how much harm we will tolerate. Precaution asks how much harm we can avoid. Risk assessment involves painstaking, often time-consuming evaluation of known hazards and the probability of harm. Meanwhile, if technologies continue to be used and rapidly developed during this process, harm may occur. Precaution places a "speed bump" in the way of technologic development to prevent harm from occurring. Precaution addresses uncertainty and the potential for major harm, even if it is not immediate. Risk assessment focuses on known, quantifiable hazards and often misses the big uncertainties. Precaution demands consideration of the need for potential harmful activities and safer alternatives to them. By doing this, the precautionary approach encourages us to set explicit goals and then consider ways of achieving them. Risk assessment may be a useful tool in evaluating alternatives, but a risk-assessment based regulatory system provides few opportunities for assessing the need for an activity in the first place. Risk assessment is used as a tool to help set certain standards in an uncertain world. Precaution does not pose absolutes. It requires that we explicitly acknowledge uncertainty. It is premised on the fact that we will never know everything but must act with as much care and foresight as possible. Risk assessment deals with chemicals, technologies, species, and activities one by one, case by case, test by test. Precaution uses all the resources of human intelligence to look at categories of suspect technologies, make informed guesses about harmful effects, and develop principles of behaviour, judgment, and development. Precaution sets goals, tries to predict outcomes, and takes a proactive approach. Risk assessment can inform this intelligence but does not provide sufficient information. We cannot depend on it as if we were automatons (15).



7 International Conventions - Pesticide Impacts don't know Borders

There are two international conventions regulating pesticides with specific properties. The Stockholm or POPs Convention and the Rotterdam or PIC Convention.

Objective of the Stockholm Convention is to protect human health and the environment from persistent organic pollutants (POPs). It aims at the elimination or restriction of currently 12 POPs, some of the most unwanted chemicals in the world. POPs are toxic, bioaccumulative, highly persistent and pose a global threat to all living beings. Nine of the chemicals initially targeted by the POPs convention are pesticides.

Already in the 1970ties it was recognised that these chemicals are extremely hazardous, which lead to bans of some POPs in the USA and Europe. From this perspective, the POPs convention therefore does not really serve the precautionary principle, it has much more the character of an emergency alert. A more progressive way would have been to require that all substances which are toxic, bioaccumulative and highly persistent are not allowed to be produced any more. A convention, which respects the precautionary principle must require that all governments test all existing and newly developed substances for these criteria and stop the production and use, disregarding the economic effects.

The Stockholm Convention was signed in May 2001, to come into force it now has to be ratified by at least 50 countries.

The Rotterdam Convention on the Prior Informed Consent (PIC) Procedure for Certain Hazardous Chemicals and Pesticides in International Trade was adopted in Rotterdam on 10 September 1998. The Prior Informed Consent (PIC) Procedure is voluntary, but it has been unanimously accepted by member countries of the Food and Agricultural Organisation (FAO) and the United Nations Environmental Programme (UNEP) and is supported by the leading chemical industry associations. The PIC Procedure disseminates information about the characteristics of potentially hazardous chemicals to the participating countries. It initiates a decision making process on the future import of these chemicals by the countries, and makes it possible to circulate this decision to other countries.

Pesticides, industrial and consumer chemicals that have been banned or severely restricted for health or environmental reasons by the participating governments can be included in the procedure. In addition acutely toxic pesticide formulations which present a hazard under the conditions of use in developing countries may also be included.

The PIC procedure is an instrument, which formalises the decisions of importing countries concerning the import of such chemicals. The aim is to promote a shared responsibility between exporting and importing countries, in protecting human health and the environment from the

The Twelve Initial POPs

Pesticides:

Aldrin
Chlordane
Dieldrin
DDT
Endrin
Heptachlor
Hexachlorobenzene (HCB)
Mirex
Toxaphene

Industrial Chemicals:

Polychlorinated biphenyls
Hexachlorobenzene (HCB)

Unintentional By-Products:

Dioxins
Furans

harmful effects of certain hazardous chemicals being internationally traded. Table 1 lists all PIC pesticide, and their type of use.

Table 1: PIC Pesticides

Pesticide	Use Type	PIC Pesticide
2,4,5-T	Herbicide	Yes
2-Fluoroacetamide	Rodenticide, Insecticide	Yes
Aldrin	Insecticide	Yes
Binapacryl	Herbicide	Yes
Captafol (isomer unspec.)	Fungicide	Yes
Carbofuran	Insecticide	Candidate
Chlordane	Insecticide	Yes
Chlordimeform	Insecticide	Yes
Benomyl	Fungicide	Candidate
DDT	Insecticide	Yes
Dieldrin	Insecticide	Yes
Dinoseb	Herbicide, Defoliant	Yes
Ethylene dibromide	Fumigant	Yes
Ethylene dichloride	Fumigant, Insecticide	Yes
Ethylene oxide	Fumigant	Yes
Heptachlor	Insecticide	Yes
Hexachlorobenzene	Fungicide, Microbiocide	Yes
Hexachlorocyclohexane (HCH)	Insecticide	Yes
Lindane	Insecticide	Yes
Merpafol cis isomer	Fungicide	Yes
Methamidophos	Insecticide, Breakdown product	Yes
Methyl parathion	Insecticide	Yes
Monocrotophos	Insecticide	Yes
Parathion	Insecticide	Yes
PCP	Wood Preservative, Microbiocide, Algaecide, Fungicide	Yes
Phosphamidon	Insecticide	Yes
Thiram	Fungicide	Candidate
Toxaphene	Insecticide	Yes

Resources to the Precautionary Principle, POPs and PIC Convention:

Science and Environmental Health Network, a consortium of North American environmental organizations, SEHN is concerned with the wise application of science to the protection of the environment and public health website: www.sehn.org/precaution.html

United Nations Environmental Programme (UNEP) POPs website: www.chem.unep.ch/pops or Stockholm Convention (POPs Convention) website: www.pops.int/

PAN Germany: The Stockholm Convention (POPs Convention), An international, legally binding regulation for the global elimination of extremely dangerous pollutants: www.pan-germany.org

Web site of the International POPs Elimination Network (IPEN) - a global network of public interest non-governmental organizations united in support of a common POPs Elimination Platform: www.ipen.org/

United Nations Environmental Programme (UNEP), website of Interim Secretariat for the Rotterdam Convention (PIC convention): www.pic.int

PAN Germany: The Rotterdam Convention (PIC Convention) an international binding regulation for the control of international trade with specific hazardous chemicals: www.pan-germany.org

8 EU Pesticide Policy - better safe than sorry?

Looking into the history of the European Union makes evident what EU policy is about. Free trade and a single market. This has to be in mind while evaluating the EU legislation. In the last years the EU moved more to a civil society, the Parliament got more power, a White Paper on Good Governance and a Directive on public access to environmental information exist. However, free trade and economic welfare are the priorities of the European Union. The draft for the future EU Constitution, published in February 2003, states in its objectives of the Union: *“The Union shall work for a Europe of sustainable development based on balanced economic growth and social justice, with a free single market, and economic and monetary union, aiming at full employment and generating high levels of competitiveness and living standards.”* This completely ignores the objective *“...of a high level of protection and improvement of the quality of the environment”* as cited in the existing EC Treaty (17). Protection of health and the environment still ranks below aspects of trade and economy. Using the ‘Find’ tool of your software in the text of EU Directives gives you a quick impression of the current implementation of the precautionary principle. The phrase ‘precautionary principle’ or ‘precautionary approach’ appears, if it appears, in the general introduction but not in the articles.

However, the existing EC Treaty does address the precautionary principle, but does not define it. In February 2000, the Commission published a communication on the precautionary principle. During the preparation of this communication, environmental groups were not consulted, while the views of the European Chemical Industry Association (CEFIC) and the American Chamber of Commerce were taken into account.

The communication presents guidelines about the implementation of the precautionary principle and actually ridicules the common understanding of the principle: *“Recourse to the precautionary principle presupposes that potentially dangerous effects deriving from a phenomenon,*

product or process have been identified, and that scientific evaluation does not allow the risk to be determined with sufficient certainty.

The implementation of an approach based on the precautionary principle should start with a scientific evaluation, as complete as possible, and where possible, identifying at each stage the degree of scientific uncertainty (18)."

Precaution in the common sense would mean that the suspicion that a technology poses uncertain risks to health and the environment is reason enough to stop this technology immediately and THAN risk assessment and risk management follow: Guilty until proven innocent and not the other way around!

One example how risk management currently works: In May 1999 the EC recognised that pesticides with a very low ADI in baby food may pose a risk to babies and infants. The EC concluded that these pesticides should not be used to produce baby and infant food. It took a year until the EC defined a *provisional tolerable daily intake* (PTDI) and a ADI of 0,0005 mg/kg/bw and lower as potentially dangerous (19). Sorting the ADI/PTDI values of the WHO in a table software takes less than a minute, but for the EC this takes years. In February 2003, over 3,5 years after realisation of the risk, the EC came out with the legally binding instruments managing the risk (see 8. 4 'Pesticide Residues in Food - EU Regulations' (on page 21)). Member States have to implement the regulations by 2004. This makes it up to almost 5 years. Five years in which baby and infant food is knowingly still contaminated with dangerous pesticides.

It is to fear that the suggested guidelines on the implementation of the precautionary principle will produce extremely time consuming risk assessment and that action will be delayed for decades.

However, the precautionary principle is more often mentioned in overall policy programmes. One of these programmes is the 6th Environmental Action Programme (6thEAP) entitled: 'Environment 2010: Our future, Our choice' The programme states: "*A holistic and comprehensive approach to environment and health is needed, with precaution and prevention of risk being*

Pesticide Actions suggested by the 6thEAP

1. *A Code of Good Practice on pesticide use;*
2. *Revise Directive 91/414 on the authorisation of pesticides...*
3. *Community Thematic Strategy on the sustainable use of pesticides. Elements of this are likely to include:*
 - a) *minimising the risk from the use of pesticides, which is principally linked to the toxicity of the substances, and monitoring progress;*
 - better control of the use and distribution of pesticides;*
 - c) *substituting the most dangerous active substances with safer ones, including non-chemical alternatives;*
 - d) *raising awareness of, and training, users;*
 - e) *encouraging the uptake of low input or pesticide free agriculture and the use of Integrated Pest Management (IPM) techniques;*
 - f) *encouraging the introduction of fiscal incentives to reduce the use of the most dangerous pesticides such as a pesticides tax;*
 - g) *linking the award of Rural Development Funds to the uptake of the Code of Good Practice on pesticide use.*
- 4) *Ratify the Rotterdam Convention on the Prior Informed Consent (PIC) Procedure for Certain Hazardous Chemicals and Pesticides in International Trade.*
- 5) *Amend Community Regulation (2455/92) concerning the import and export of dangerous chemicals to bring it into line with the Rotterdam Convention, to improve some of its procedural mechanisms and to improve information to developing countries.*
- 6) *Develop/fully implement Community programmes to improve the chemicals and pesticides management in developing and accession countries, including for the elimination of stocks of obsolete pesticides.*
- 7) *Support research efforts aimed at the reduction and sustainable use of pesticides.*

central to this policy and taking account of particularly vulnerable groups such as children and the elderly.... Prevention and precaution also means we should aim at substitution of the use of hazardous substances with less hazardous ones wherever technically and economically feasible (20)."

In the pesticide policy approach, within the 6thEAP, the precautionary principle is addressed in the field of drinking water protection: *"Whilst strict standards already exist for the quality of drinking water supplied at the tap regarding pesticide contamination, there is an obvious need to stop pesticides getting into our drinking water sources in the first place (20)."*

One of the actions suggested by the 6thEAP is a Thematic Strategy on the sustainable use of pesticides (see box). A Commission Communication, the first step towards such a Thematic Strategy was published in July 2002. The Commission's approach falls short of introducing strong and immediate legislative action. The suggested instruments aim at risk reduction without setting specific targets and timetables. Use reduction and the substitution principle is only suggested for the most dangerous pesticides, which are not defined at this stage.

The EC sees national reduction plans as the major tool towards sustainable use of pesticides, but makes not clear whether or not these national reduction plans will become mandatory.

In general, the Communication on the Thematic Strategy leaves many activities to the Member States, focuses much on improved control on the use and distribution of pesticides and further risk evaluation and believes that proper implementation of the existing regulations will solve main problems. The Commission also proposes to encourage low-input or pesticide free farming as well as the use of genetically modified organisms (GMOs) as a method for reducing pesticide use, which is not acceptable.

In Chapter 10 'Filling Policy Gaps - Pesticide Use Reduction as Precautionary Instrument' (on page 34) other approaches towards sustainable use of pesticides are described.

The next chapters will describe major directives regulating pesticides in the EU.

8. 1 Pesticide Prohibition (Directive 79/117EC)

In the late 1970ties the European Union recognized that particular pesticides pose risks so great that their use in the EU can no longer be tolerated. The first pesticides prohibited were pesticides such as DDT and Aldrin today known as POPs pesticides, but also mercury compounds. Back then Member States were allowed to authorize pesticides containing such ingredients in some cases. By 1990 these exceptions expired or were deleted, and a number of pesticides were added. The last pesticides were added in 1990. Currently some 25 pesticides are prohibited. The production and export to third countries is not prohibited (21).

8. 2 Pesticide Authorization (Directive 91/414EC)

The authorization of pesticide active ingredients in the European Union is regulated through Council Directive 91/414. Goal of the Directive is to harmonize the authorization of plant protection products with regard to Article 45 of the EU Treaty. Article 45 of the Treaty entirely deals with trade between EU Member States. Since different authorization standards within the EU present a trade barrier, Council Directive 91/414 aims at the abolition of such trade barriers by harmonizing the authorization process. However, the Directive also states in its introductory section that: *"...authorization must ensure a high standard of protection, which, in particular,*

must prevent the authorization of plant protection products whose risks to health, groundwater and the environment and human and animal health should take priority over the objective of improving plant production” (22).

Complying with Council Directive 91/414 Member States can only authorize plant protection products containing active ingredients listed on its Annex I, and under consideration of its efficiency, human toxicity, environmental fate, impact on non-target organism and other aspects listed in Article 4 of Directive 91/414. In accordance with Directive 91/414 pesticide active ingredients, which were authorized before 25th July 1993 (so called Existing Active Ingredients) must be newly reviewed regarding their toxicity and environmental fate utilising new test methods defined by other regulations. More than 800 pesticide active ingredients are undergoing this re-evaluation process. The proposed deadline for this procedure was July 2003 but is now 2008. The manufacturers of pesticide active ingredients have to finance the toxicity tests and must submit specific dossiers containing, among others, new test results. For many pesticides active ingredients the expenses for the tests exceed the current or potential market volume. Therefore, for some 320 active ingredients new authorisation was not applied. After July 2003 the use of over 340 active ingredients is not allowed in the EU any more. The European Commission assumes that further 110 active ingredients will be withdrawn by end of 2003. Altogether, some 60% of the over 800 active ingredients are then off the market. However, if a Member State can prove that for pesticides active ingredients which are excluded from Annex I efficient alternatives do not exist and their further use is essential, it is possible that such substances can receive temporary authorisation until 30th June 2007. These temporary authorizations are limited to use on specific crops in the Member State concerned and should allow the Member State to search for alternatives. Presently, 13 Member States received ‘essential use’ authorisation for altogether 52 active ingredients, which uses would have otherwise expired by July 2003.

Currently, there are 53 active ingredients on Annex I, 29 of them are so called new active ingredients (new ai), which have not been on the market in a Member State before 1993. New active ingredients also can receive provisional authorisation, which usually lasts 3 years.

8.3 Flaws and Gaps of the Pesticide Authorization

The abolition of some 60% of the 800 existing pesticide active ingredients sounds like a good message. Indeed, many pesticides of concern are then off the market, and the European Commission celebrates this as a success towards pesticide products safer for the environment and human health (23). However, the abolition of these 60% does not happen because they are dangerous for the environment and human health, there is just no industry interest to ‘defend’ these chemicals. A closer look at the Directive makes a number of major flaws and gaps apparent. Or take a look at the 53 Annex I pesticides: 25 of them are classified ‘Dangerous for the Environment’, 12 of them are suspected to induce cancer (see box) and many of them have been detected in food and water (24, 25). What are the reasons for this obvious disrespect of the precautionary principle? PAN Europe concludes in its position paper that pesticide companies are very active in undermining Directive 91/414, – and that these companies find open ears in the European Commission (26).

The so called ‘essential uses’ are another example of subverting the aim of the Directive. The ‘essential uses’ make it possible that old fashioned and hazardous pesticides continue to be a risk to human health and the environment. A good example is the continued use of the soil fu-



migrant *1,3-dichloropropene* in The Netherlands. This chemical, classified as probable carcinogenic, is a substitute for the ozone layer damaging *methyl bromide* (9). It is regularly exceeding groundwater standards in shallow groundwater and does pose a serious threat to the aquatic environment (27). Hypothetically, the ‘essential use’ exception allows some 11.500 growers and nurseries use of *1,3-dichloropropene* on flower bulbs, strawberries, vegetables, tree nursery crops, perennials and replanting of orchards in The Netherlands (28, 29).

Are there no alternatives? The global phase out of *methyl bromide* stimulated a profound research on non-chemical alternatives to chemical soil-fumigation, and for long times organic farmers and IPM farmers apply these methods (30). The example shows that the literal aim of the protection human health and the environment in Directive 91/414 is pure hypocrisy.

Another sign of eroding the aims of Directive 91/414 is the invention of the phrase ‘non-relevant’ metabolites. Toxicity tests for these ‘non-relevant’ metabolites are less elaborated, – and less cost intense than for active ingredients and ‘relevant’ metabolites. It seems that industry friendly working groups semi-scientifically mixed the term ‘relevant’ and ‘non-relevant’ in order to release industry from testing. Weak science can also be observed in the field of eco-testing. Under industry influence a testing method called ‘higher-tier assessment’ was established. Water plus a bit of mud plus some insusceptible species should mimic environmental conditions. With this internationally not approved test methods, and abandoning all existing scientific literature, the NOECs (No Observed Effect Concentration) was for some pesticides immensely raised.

The pesticide authorization process in the European Union is increasingly influenced by industry interests, the whole process is not transparent and few stakeholders are given the possibility to participate. The ‘essential use’ rule must be abolished, a difference between ‘relevant’ and ‘non-relevant’ metabolites should not be made. The ‘higher-tier assessment must be proven by independent scientists. There is a deficiency of apparent precautionary criteria for inclusion or exclusion of an active ingredient in Annex I: There are no cut-off criteria (exclusion criteria) for critical properties, like persistence, bioaccumulation and toxicity.

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The Commission, Member States and the European Parliament must stop the false way of implementing Directive 91/414 by creating maximum transparency and a fair balance between stakeholders (26).

Annex I Pesticides and Cancer

kresoxim-methyl, iprodione	Likely to be carcinogenic to humans. (U.S. EPA); Limited evidence of a carcinogenic effect. (EU)
thiabendazole, pymetrozine, sulfosulfuron	Likely to be carcinogenic to humans. (U.S. EPA)
isoproturon	Limited evidence of a carcinogenic effect. (EU)
amitrole	Probable human carcinogen. (U.S. EPA); Limited evidence of a carcinogenic effect. (EU); Possibly carcinogenic to humans. (IARC)
2,4-D, pendimethalin, 2,4-DB, imazalil	Possible human carcinogen. (U.S.EPA or IARC)
linuron	Limited evidence of a carcinogenic effect. (EU); Possible human carcinogen. (U.S. EPA)

Sources: European Commission DG Health and Consumer Protection website:
http://europa.eu.int/comm/food/fs/ph_ps/pro/index_en.htm

Critical voices: PAN Europe (2001): Position paper on false implementation of directive 91/414 (harmonisation of pesticides), and proposals for amending the directive.

PAN Europe report (2003): *How to organise public participation in the pesticides evaluation process?* Straight-forward and useful description of the authorisation process, how decision are made and the possibilities of participation www.pan-europe.net

8.4 Pesticide Residues in Food - EU Regulations

In order to ensure free trade among the EU Member States and other Members of the European Free Trade Area (EFTA), the European Union strives to reduce trade barriers. Nationally appointed maximum residue levels are potentially such trade barriers. To avoid trade disputes, the European Union works since 1976 closely with its Member States to harmonise maximum residue levels (MRLs). Four different Council Directives plus a number of Amendments have been established to set maximum residue levels (MRL) in different foodstuffs (31). In order to simplify the existing legislation and to define the roles of the different actors, particularly that of the new European Food Safety Authority (EFSA), the EU Commission recently prepared a draft Regulation to harmonise maximum residue levels of pesticides allowed in products of plant and animal origin (33).

Currently, more than 17,000 Community MRLs have been set for various commodities for 133 pesticide active ingredients.

The procedure to establish a MRL for one pesticide consists of four steps:

1. Establishment of the residue level in or on an agricultural crop treated with the pesticide under conditions of the Good Agricultural Practice (GAP).
2. Estimation of the total daily intake of the specific pesticide using appropriate consumer intake models and the established residue level.
3. Adjustment of an 'acceptable daily intake' (ADI) using data from toxicological tests. This involves finding the highest dose that would produce no adverse effects over a lifetime (chronic) exposure period and then applying appropriate safety factors.
4. Establishment of the residue level under (1.) as maximum residue level (MRL) under the condition that the estimated daily consumer intake for all foodstuffs calculated under (2.) is lower than the ADI calculated under (3.). In cases where the calculated intake is higher, the use

Metabolic Body Burden

A study conducted by the U.S. Centres for Disease Control and Prevention (CDC), tested thousands of people for 116 chemicals, 34 of them pesticides. The 2003 report includes evidence of the U.S. population's chemical body burden of three types of pesticides: organochlorines, organophosphorus compounds and carbamates.

CDC highlights that metabolites of the pesticide chlorpyrifos are nearly twice as high in children (age 6-11) than adults. CDC second highlight relates to the organochlorine pesticide DDT, which was banned in the U.S. in 1972. DDT metabolites were found in Mexican Americans at levels more than three times that of non-Hispanic whites. DDT use for malaria control continued in Mexico until its phase out in 2000.

In addition, DDE was present in the bodies of youth aged 12-19 born after the U.S. ban, indicating continued exposure from residues in the environment (32).

conditions need to be modified to reduce the residue level in the commodity. If this is not possible the use of that pesticide on that crop cannot be tolerated and the MRL is set at the limit of determination (effectively zero).

Sensitive consumer groups are addressed by Commission Directive 91/321/EEC on infant formulae and follow-on formulae and by Directive 96/5/EC on processed cereal-based foods and baby foods for infants and young children (34, 35). According to Commission Directive 1999/50/EC and 1999/39 individual pesticide residue level should not exceed 0,01 mg/kg in these foods. The same Directives states: *“that for a small number of pesticides even such low levels might allow the possibility that under worst-case intake conditions the ADI of these pesticides is exceeded”* and concludes that the use of pesticides with an ADI 0,0005 mg/kg/bw or lower should be prohibited on crops intended for the production of these food items. Since February 2003, the Commission prohibits the use of 12 pesticides with an ADI of 0,0005 mg/kg/bw or lower. For five other pesticides MRLs are set, ranging from 0,004 - 0,008 mg/kg, which is in fact 20 times higher than the ADI set by the WHO/JMPR (36, 37, 38, 39).

Council Directive 89/397/EC lays down general principles governing the official inspection of foodstuff. Member States must draw up forward programmes laying down the nature and frequency of inspections and must inform the Commission annually of the implementation thereof. One result of this regulation is the national monitoring programme on pesticide residues in food. The last available EU wide collected data on foodstuff of plant origin is from 2001. Table 2 shows the number of samples taken by Member State as well as the numbers of pesticides tested. The report published March 2003 showed that almost 40% of all samples contain pesticide residues.

Table 2: Number of samples taken in National Food Monitoring Programmes in 2001

Member State	Number of Samples	Number of Sample per 100,000 inhabitants	Number of pesticides tested	Percent of available pesticides tested ^a
Austria	962	12	149	19
Belgium	927	14	150	19
Denmark	3250	33	130	16
Finland	2164	48	173	22
France	4108	7	223	28
Germany	6340	7	90	11
Greece	1374	15	207	26
Ireland	331	7	75	9
Italy	9365	14		
Luxembourg	167	40	52	7
Portugal	2879	17	314	39
Spain	496	9	116	15
Sweden	3341	17	218	27
The Netherlands	2493	38	175	22
United Kingdom	2017	3	182	23

a. Globally, there are approximately 900 active ingredients in use, these 900 present the 100% in this calculation.

In 3.9% of all samples, residues above the MRL (national or EC-MRL) were found. Multiple residues were detected in 18% of the samples of which almost 4.2% contained four or more pesticide residues (40).

Since 1998 the EU co-ordinates, in addition to the national monitoring programme, an annual monitoring programme for four commodities, which are tested for 20 pesticides. Since 2001 foodstuff was tested for 35 pesticides. In 2001 about 10.000 samples were analysed. However, not every sample was analysed for all 35 pesticides.

Depending on the commodity, in 33% to 60% of the samples residues of one of the 35 pesticides were found below or at the MRL (national or EU-MRL), and in 2.2% of the samples MRLs (national or EU-MRLs) were exceeded (41).

The European Commission also operates an EU Rapid Alert System for Food. This was set up in 1992. It provides competent authorities in EU Member States with the means of sharing information on cases where unexpected pesticide residues and other residues are found in imported produce. The system enables rapid action to be taken where necessary. In 2002 a number of 434 alerts relating to products which are on the market and which present a risk to the consumer were exchanged. In 10% percent of the cases exceeding pesticide residues were the reason. Unfortunately, the report publishing these results does not mention what action followed the alert (42).

8.5 Failing Consumer Protection

The large number of regulations regarding pesticide residues in food could imply a high level of protection, but there are many things not mentioned in national and European reports on residues in food. The first obvious example is the difference between baby food and adult food. For infants and young children a maximum residue level of 0.01 mg/kg in certain food stuffs is supposed to be safe. If parents decide to prepare the food with fruit and fresh vegetables from the market, they can assume that this MRL will be exceeded possibly in 40% of the cases. The results of the food alert system show, that MRLs are exceeded immensely, and that they can be

an acute risk to human health. In November 2002 spinach from Spain contained 12.5 mg/kg methomyl and a risk assessment suggests "...that consuming spinach containing concentrations at similar levels could lead to exceedances of the acute reference dose for both adults and toddlers. Any effects on consumers would be minor (e.g. increased salivation, mild upset stomach, headaches) and unlikely to last for more than a few hours (44)." Two assumptions in this statement can be criticized, first of all a governmental agency decides that a few hours headache is a minor effect on consumers. This is something the person with the headache should decide. Secondly, methomyl has an impact on the human nerve system and its chronic effects have not been investigated thoroughly (45, 46). However, these residue levels are not

What's your pesticide load?

FoodNews.org--the most informative digital dining service on the Web! In celebration of the new USDA Organic standards the Environmental Working Group introduced the new Fruit Salad, Garden Salad, and Produce Aisle features that let you see just how many pesticides you can avoid by eating organic, as compared to conventionally grown fruits and vegetables. Make a salad from our menus and the FoodNews Computer will tell you how many and which pesticides likely came along for the ride, based on the best available data from the federal government and the State of California (43).

acceptable, and if discovered the charge is eliminated or returned to the producer. But looking at the numbers of samples taken per 100,000 inhabitants it is most likely that such exceedances are discovered rather rarely. Can consumers trust the result of monitoring programmes and the safety of MRLs? The official reports usually leave out a number of facts. The European Union MRL of the individual pesticide is based upon the ADI. The ADI ignores multiple pesticide exposure. Many pesticides detected in food have the same mode of action e.g. the organophosphates and N-methyl carbamates, and a sound science risk assessment must evaluate possible cumulative effects. The reality, that our daily food basket contains a number of nerve toxins is not reflected in the current EU MRLs. That a cumulative risk assessment is possible is shown by the work of the U.S. Environmental Protection Agency, which developed guidance on cumulative risk assessment of pesticide chemicals that have a common mechanism of toxicity (47). Many impacts of pesticides on the human body such as effects on the hormone system, on development and behaviour are not known. Can a single exposure of an unborn child damage its health, maybe later in life? People are exposed to a huge number of chemicals. Domingo Jiménez-Beltrán, Executive Director of the European Environmental Agency (EEA) points out: *“Children are at risk of exposure to more than 15,000 synthetic chemicals, almost all developed in the last 50 years, and to a variety of physical agents, such as polluted indoor and outdoor air, road traffic, contaminated food and water, unsafe buildings, contaminants in toys, radiation and environmental tobacco smoke... (48).”* How does this chemical cocktail work? Then, there is a number of uncertainties concerning the sampling. Not all pesticides are tested, and due to bound residues analytical methods often extract only 30-90% of the amounts in the sample (12).

However, the evaluation and monitoring of pesticide residues is just one attempt in order to reduce the health risk of pesticides residues. Another way would be to prohibit pesticides, which often exceed the MRLs, and to focus on non-toxic alternative in pest management.

Consumers want safe food. Policy makers as well as food processors, retailers and farmers, but also consumers must aim at this goal. The European Union needs to abandon the end-of-pipe approach and establish a pesticide use and risk reduction programme. Dangerous pesticides such as pesticides with an ADI at 0,0005mg/kg/bw and lower may not enter Annex I of Directive 91/414 and may not be allowed for ‘essential uses.’ Such pesticides do not belong in food potentially eaten by infants and young children. It should be recognised that infants and children do eat fresh fruits and vegetables often in larger amounts than adults.

Sensitive consumer groups, not adults,

Targeting supermarkets for healthy food

Aiming at a change in governmental policy is one and very long way towards a healthier environment and healthier food. Another way is to target corporations directly and this way can be very successful. Corporations have an image to lose, they don't want negative press, and people demonstrating in front of their doors.

This sensitivity is used by the Real Food Campaign organised by Friends of the Earth United Kingdom.

The campaigners first came out with a league table looking at supermarket policies on GM, pesticides and organic food. In front of the supermarkets, equipped with large posters Friends of the Earth's local groups handed these tables to the consumers. Additionally, thousands of prepared letters were provided to the public, and sent to the supermarkets.

Result of this pressure was that large supermarket chains such as Co-op, Marks & Spencer and Sainsbury's made commitments to phasing out particular pesticides and chemicals (49).

should be the base-line for setting MRLs. The ADI as a data base for the MRL must be replaced by a cumulative risk assessment considering multiple pesticides.

The euphemistic residue reporting style in the EU and national publications must be abolished, health risks, scientific uncertainties, sampling gaps must be discussed in the monitoring reports in a way educated lay persons can understand.

Another major point is to strengthen the consumer's choice. In order to create active and educated consumers national monitoring programmes must publish data more detailed. In the United Kingdom, pesticide residue data and the origin of the sample are published. If the consumer knows that vegetables in certain supermarkets have less residues, they are able to choose. Due to public pressure large supermarket chains such as Co-op and Marks & Spencer prohibited a number of pesticides (see Box) (50). Food retailers should establish more contract agriculture requiring farmers to reduce their pesticide use, without endangering their economical survival.

Sources: European Commission DG Health and Consumer Protection website:

http://europa.eu.int/comm/food/fs/ph_ps/pest/index_en.htm and on Dietetic foods, food supplements and fortified foods http://europa.eu.int/comm/food/fs/sfp/df/df_index_en.html

EU Rapid Alert System for Food: http://europa.eu.int/comm/food/fs/sfp/ras_index_en.html

Critical voices: Friends of the Earth United Kingdom Real Food Campaign:

<http://www.foe.co.uk/campaigns>

PAN Germany, Towards pesticide-free food, PAN Germany's suggestions for a Codex Alimentarius reform, www.pan-germany.org

8.6 EU Regulation on Water Protection - A leaking Sieve

In 2000 the Water Framework Directive 2000/60EC (WFD) with the objective to establish a framework for the protection of inland surface waters, transitional waters, coastal waters and groundwater was enforced. One of the objectives of this directive is to ensure the progressive reduction of pollution of groundwater and prevents its further pollution. For this purpose 3 lists of substances were composed: an indicative list of main pollutants (Table 3), a list of priority substances and a list of priority hazardous substances (Table 4). The list of main pollutants consist of chemical classes and use types, therefore it includes priority substances and priority hazardous substances per se.

In order to prevent or control water pollution the Directive requires different strategies and measures concerning substances on different lists. It also clearly requires different strategies and measures for ground water and for surface water.

The Directive aims at the enhancement of the protection and improvement of the aquatic environment, inter alia, through specific measures for the progressive reduction of discharges, emissions and losses of priority substances and the cessation or phasing-out of discharges, emissions and losses of the priority hazardous substances.

The Commission may prepare strategies against pollution of water by any other pollutants or groups of pollutants, including any pollution which occurs as a result of accidents.

The Directive aims at the progressive reduction of pollution of groundwater and prevents its further pollution. Member States must implement the basic measure of prohibiting direct discharges of pollutants into groundwater, with some exceptions. The European Parliament and the Council must adopt specific measures to prevent and control groundwater pollution.

The Water Framework Directive is not the first attempt to ensure cleaner water and to control the discharge of dangerous substances. Community policy concerning dangerous or hazardous substances in European waters was already introduced in 1976 by Dangerous Substances Directive 76/464/EEC on pollution caused by discharges of certain dangerous substances. This Directive first applied to inland surface water, territorial waters, internal coastal waters, ground water. The objectives were the elimination of pollution by the dangerous substances listed in the List I and the reduction of pollution by List II substances. The regulatory measures applied by Member States to achieve these objectives are prior authorizations for any discharge of List I substances, which can be granted only for a limited time period and according to specific emission standards. List I substances are identified on the basis of their toxic, persistent and bioaccumulative properties. For List II substances Member States must apply similar measures. All discharges containing such List II substances require prior authorization by the competent authority in the Member State concerned, in which emission standards must be laid down. Measures to prevent or control indirect discharges for instance from run-off are not explicitly stated. The Commission identified in the 1980ties 132 'candidate' substances which qualify as List I substances according to Directive 76/464/EEC. However, only 18 out of the 132 substances have been regulated up to now through daughter directives as List I substances (52).

Since November 2001, the List I of the Dangerous Substances Directive 76/464 is replaced by a list of 33 priority substances adapting Annex X of the Water Framework Directive(53).

In 1980 the protection of groundwater was taken out of the Dangerous Substances Directive 76/464/EEC and regulated under the separate Groundwater Directive 80/68/EEC on the protection of groundwater against pollution caused by certain dangerous substances. In a similar

Herbicides in drinking water cause impaired fertility

A recent study links very low levels of a common lawn and garden weedkiller to lowered fertility. Researchers tested an herbicide mixture in the drinking water of gestating mice and report a 20% increase in failed pregnancies. Even more alarming, the largest reductions in live pups occurred in mice receiving a dose seven times lower than the maximum allowable level set by the U.S. EPA for drinking water. The group deliberately selected the sort of weed killer most commonly employed by homeowners on their lawns. They would not name the brand, other than to say, "We bought it in a hardware store." The mixture contained three phenoxy herbicides, 2,4-D, dicamba and mecoprop, plus added ingredients to prolong shelf life and speed absorption.

In contrast to the U.S. EPA, which reviews toxicity studies of individual chemicals, the researchers designed their study to examine the toxicity of the herbicide mix as sold over the counter. "You're talking about putting a lot of very reactive chemicals together in a mix, and storing it at room temperature," explained one of the researchers. "We have no idea what kind of reactions might be going on once these active ingredients are formulated into products."

Another important implication of the study concerns the impacts of dose levels. A common assumption in toxicology is that higher doses present greater effects, as stated in the maxim "the dose makes the poison." In this study, at certain times of year, the lower doses had the greatest impact on rates of fertility (51).

way to the Directive 76/464/EEC, the Groundwater Directive divides pollutants into two categories – a List I and a List II. However, the objectives are to prevent List I substances from entering groundwater and to limit List II substances introduction into groundwater. In order to achieve these objectives, the national competent authorities have to prohibit any direct discharges and to take all necessary measures to prevent indirect discharges with regard to List I substances. All discharges of List II pollutants are subject to prior investigation and authorisation.

By 2013 the Water Framework Directive 2000/60/EEC will repeal the Groundwater Directive as well as the Dangerous Substances Directive, with the exception of List I of the Dangerous Substances Directive, which already is repealed. However, in future, the Water Framework Directive will be the main Directive regulating dangerous substance in water. The Directive lists in its Annex VIII an indicative list of the main pollutants, which is in fact a summary of the List I and List II of the older Directives.

Table 3: Indicative list of main pollutants in the Water Frame Work Directive and their Status in the Dangerous Substances Directive 76/464/EC and the Groundwater Directive 80/68/EC

Directive 2000/60EC	Directive 76/464EC	Directive 80/68/EC
Organohalogen compounds and substances which may form such compounds in the aquatic environment	List I	List I*
Organophosphorous compounds	List I	List I
Organotin compounds	List I	List I
Substances and preparations, or the breakdown products of such, which have been proved to possess carcinogenic or mutagenic properties or properties which may affect steroidogenic, thyroid, reproduction or other endocrine-related functions in or via the aquatic environment ^a	List I*	List I*
Persistent hydrocarbons and persistent and bioaccumulable organic toxic substances	List I*	List I*
Cyanides	List II	not listed
Metals and their compounds	List II	List II
Arsenic and its compounds	List II	List II
Biocides and plant protection products ^b	List II ^c	List II ^d
Materials in suspension	List II*	List II*
Substances which contribute to eutrophication (in particular, nitrates and phosphates).	List II*	List II*
Substances which have an unfavorable influence on the oxygen balance (and can be measured using parameters such as BOD, COD, etc.)	List II	not listed

a. There are a major additions. The older Directives only list substances, which possess carcinogenic mutagenic or teratogenic properties

b. Plant protection products are also an addition. The older Directives only list biocides and their derivatives.

c. Biocides and their derivatives, which do not belong into chemical groups of List I (e.g. organophosphorus, organotin compounds)

d. ibid c.

* the older Directives contains a similar chemical groups, the Water Frame Work Directive partly summarises chemical groups

Regarding the main pollutants from the indicative list, the Directive requires 'basic measures' i.e. minimum requirements to prevent or control point source and diffuse source discharges into waters. 'Basic measures' consist of a requirement for prior regulation, such as a prohibition on the entry of pollutants into water, or for prior authorisation, or registration based on general binding rules, laying down emission controls for the pollutants. Supplementary measures are only described for groundwater (54).

In order to adopt specific measurements regarding priority substances a list of dangerous priority substances was conducted. This list can be found in Annex X of Directive 2000/60/EC(53). Table 4 presents pesticides listed in Annex X of Directive 2000/60/EC.

Table 4: Priority Substances Used as Pesticide or Inert Ingredient^a

Substance	Use type	Regulatory Status (91/414)	Priority Substance	Priority hazardous Substance
Alachlor	Herbicide	Pending	Yes	
Atrazine	Herbicide	Pending	Yes	Yes***
Benzene	Solvent	not listed	Yes	
Chlorfenvinphos	Insecticide	Out ('essential' use)	Yes	
Trichlormethan, Chloroform	Solvent, Fumigant, Inert	not listed	Yes	
Chlorpyrifos	Insecticide	Pending	Yes	Yes***
Diuron	Herbicide	Dossier	Yes	Yes***
Endosulfan	Insecticide	Pending	Yes	Yes***
Endosulfan - alpha	Insecticide	Pending	Yes	Yes***
Ethylene dichloride	Fumigant, Insecticide, Inert	not listed	Yes	
Hexachlorobenzene	Fungicide, Microbiocide	Banned	Yes	Yes
Hexachlorocyclohexane	Insecticide	Banned	Yes	Yes
Isoproturon	Herbicide	Annex I	Yes	Yes***
Lindane	Insecticide	Out	Yes	
Methylene chloride	Solvent, Inert	not listed	Yes	
Naphthalene	Insecticide	not listed	Yes	Yes***
Nonyl phenol	Adjuvant, Inert	not listed	Yes	Yes
PCP	Wood Preservative, Microbiocide, Algaecide, Fungicide		Yes	Yes***
Pentachlorobenzene	not specified		Yes	
Simazine	Herbicide	Pending	Yes	Yes***
Trifluralin	Herbicide	Dossier	Yes	Yes***

a.U.S.Environmental Protection Agency, Inert Ingredients of Pesticide Products: <http://www.epa.gov/opprd001/inerts/fr54.htm>

***Candidate; substance will be proofed as a priority dangerous substance until November 2002.

Source: European Commission

Measurements regarding hazardous priority substances aim at the phase-out and for priority substances at the stepwise discontinuation of the pollution within 20 years after the adoption of measurements.

The Table shows that the decision about the hazardous priority substances is not final. Deadline for this decision was November 2002.

Pesticide residues in drinking water are regulated through the Drinking Water Directive 98/83EC. Annex I of this Directive contains a list of bacteria and chemicals and their allowed maximum concentration in drinking water. According to Annex I, drinking water can contain 0,1 µg/l of an individual pesticide, but the total concentration of all detected pesticides should not exceed a maximum of 0,5 µg/l. In the case of the POPs pesticides aldrin, dieldrin, heptachlor and heptachlor epoxide the value is 0,030 µg/l (55). The Drinking Water Directive will not be repealed by the Water Framework Directive.

8.7 Priority Substances - Protection Prevention vs. Pollution Prevention?

Since 1976 the European Community is trying to reduce the pollution of waters, and for over 20 years several lists exist with pollutants which need to be reduced. Is the new Water Framework Directive (WFD) better capable to stop water pollution than the previous Dangerous Substances Directive (76/464/EC)?

The vague answer: It depends. The idea of two lists, one with priority substances and a second with priority hazardous substances, is similar to the Dangerous Substances Directive. But the new lists are much shorter. On the other hand, the consequences for a listed substance are more severe under the WFD: For priority substances, EU-wide environmental quality standards will be set, for priority hazardous substances, all discharges, emissions and losses have to be prevented within 20 years. So far, only 33 substances have been classified as priority substances, 10 are classified as priority hazardous substances, and for 15 priority hazardous candidates a decision has not yet been taken. Typically, for the pesticides on the list which are still in use the classification is still open. The pesticide industry is fighting hard to get their substances off the list of priority hazardous substances. Their clear ambition is to get their substances registered and pushed on Annex I of Directive 91/414/EC. Any phase-out plans such as the listing as priority hazardous substance under the WFD would almost certainly prevent this. In case their influence is strong enough to win this battle the Water Framework Directive would remain, in the field of pollution prevention, considerably weaker than existing EU legislation under the Dangerous Substances Directive, and hence a major draw back.

Another open question is: What will happen with the other 99 substances in List II of the Dangerous Substances Directive? Theoretically, these are priority substances, because the Directive 76/464/EC (Article 2) states: *“Member States shall take the appropriate steps... to reduce pollution of the said waters by the dangerous substances in the families and groups of substances in List II.”*

However, the Water Framework Directive will replace the Dangerous Substances Directive. Article 4, (iv) of the WFD contains a very similar wording for priority substances, applying the word ‘priority’ instead of ‘dangerous.’

Priority substances are substances selected by the Commission in accordance with Article 16, and hence all substances not selected would be treated as other pollutants, i.e. would have to be regulated by Member States.



Currently, the protection of surface waters entirely depends on the lists of priority substances and priority hazardous substances. The Commission *may* prepare strategies against pollution of water by any other pollutants, but the public can not sue for this. Further measures are required at Member State level if waters don't achieve good chemical status. In that case, the Member State has to find out the cause of the problem and then act on the chemical or chemicals involved.

In over 20 years the European Commission never came up with a detailed list of ground water pollutants, and it looks like they do not plan to do so (56). Article 17 states that specific measures to prevent and control groundwater pollution have to be established two years after entry into force. The two years are over and specific measures have not been established.

However, pesticides do not belong in water. The environmental behaviour of pesticides cannot be controlled easily and once they have entered the groundwater, they will remain there for many years. Appropriate measures to meet the objective of the Water Framework Directive are pesticide use reduction and the prohibition of pesticides which are often detected in water, independently of their persistence and toxicity.

The Commission should enlarge the lists of priority substances beginning with all List II substances of the Dangerous Substances Directive. In co-operation with agricultural experts research on crop specific alternatives must be conducted. PAN Germany conducted a study based on residue data, which led to the selection of two problematic crops. The study then demonstrates specific pesticide use reduction measures for these two crops (25).

In order to reduce run-off from urban areas, sales of fertilisers containing pesticides for use in private gardens need to be prohibited in the European Union. Urban pesticide use needs to be restricted European wide.

Sources to Water Directives:

European Commission: Water Protection and Management

<http://europa.eu.int/scadplus/leg/en/s15005.htm>

Drinking Water Directive:

http://europa.eu.int/comm/environment/water/water-drink/index_en.html

European Environmental Bureau (EEB) a federation of non-governmental organisations (NGOs): <http://www.eeb.org/activities/water/main.htm>

9 Lobbying in the European Union

The following four chapters were taken, with kind permission, from the University Tilburg, which maintains DEsite a didactic module focusing on the decision-making process within the European Union (57).

Decisions taken in the framework of the EU can have an enormous impact on every sector of society. Organisations like those in the environmental movement may also profit by certain decisions to achieve their objectives. In order to influence decision-making in their favour, many organisations try to influence the process so that the outcome may benefit them. Lobbying usually means giving the right person the right information at the right time. Good lobbyists are familiar with the Brussels labyrinth and know when to be where. Lobbying is generally conducted by respectable, professional organisations. The information supplied varies from objective sta-

tistical data and subjective views of a policy to actual proposals for amendments. The workload being what it is, sound information on a particular subject is often more than welcome by those working for the institutions. The institutions themselves often seek contact with an NGO when they need information. Sometimes the contacts are conducted on a formal basis. The value of the NGOs' work for the institutions is partly borne out by the fact that some NGOs are subsidised. However, NGOs do not work in the same way with every institution. One of the reasons for this is the difference in culture between institutions. The Commission traditionally works closely together with NGOs, whereas the Council has become accessible only recently. Besides, the role of the institutions in the decision-making process is different. Therefore, every institution requires a different approach.

9.1 European Commission

Because of its right of initiative, the European Commission is the key 'lobby target'. This institution is at the very beginning of the decision-making trajectory, so if an NGO wants a decision about a particular issue, the Commission is the first place to go.

The Commission also stimulates public debate when it is developing a new policy. One of the ways to achieve this is by publishing so-called White Papers and Green Papers. These discussion papers explain the problems of a particular issue and list possible options for new policies. A White Paper is more detailed and more concrete than a Green Paper, but neither contains binding proposals. The aim of such 'Papers' is to give interested parties an opportunity to give their opinion. The Commission maintains contacts with NGOs in different ways. The services of the Commission increasingly organise meetings with NGOs to discuss a current issue or consult external experts when questions on a particular subject exist. In addition, there is often more structured co-operation in the form of regular meetings on the same subject, without these meetings being official consultations. For instance, twice a year, there is a meeting of the services of the Commission and all organisations that are members of a platform of European social NGOs. However, there is also formalised consultation. This is the case when a formal obligation exists to consult the NGOs during the decision-making process, for instance, in advisory or consultation committees. There are fixed rules and procedures. An example is the consultation committees in the field of agriculture. The administrative services and the directorates-general are responsible for the preparation of the proposals before the board of commissioners decides. The longer a subject is in preparation, the more official it becomes and the more difficult it is to make any changes. If a NGO wants to exert any influence, it is best to start as early as possible and on the lowest possible rung of the hierarchical ladder of the Commission.

Good contacts are essential here, since in the initial stage there are no official documents. And even if a green or a white paper is published, it is better to have been involved in its realisation than having to try to make changes at a later date. At the moment, cooperation with NGOs differs per policy field. This means there is no equality as regards access to information and the way in which consultation is organised. The Commission is trying to improve this. At the beginning of 2000, a discussion paper appeared to be consulted via the list of Commission proposals, in which the current state of affairs is described and in which proposals are made to arrive at better cooperation. For example, information about meetings can be improved, and a list will appear of the NGOs that are involved in formal and structural consultation. So far, the Com-

mission has always opposed the accreditation of NGOs, but now, in the discussion paper, it is considering whether a more formalised approach might provide an added value.

9.2 European Parliament

Parliament is playing an increasingly important role in the community decision-making processes. The Treaty of Amsterdam reinforced this by making the co-decision procedure, in which Parliament together with the Council acts as legislator, the most requisite kind of decision-making method. On the whole, members of Parliament are sympathetic towards NGOs. As they need to study a multitude of subjects, background information is very useful. NGOs can also point out less obvious consequences of a decision. In Parliament, too, the NGOs come into a particular path as early as possible. Commission proposals are first dealt with in parliamentary committees, where the decisions of the plenary sessions are prepared. The Rapporteur is the most important person in this process as he writes the draft opinion. This is discussed in the committee, whose members may propose amendments, and submitted to the plenary session after voting. Though it is formally possible, it is unusual for new amendments to be submitted at the plenary-session stage, particularly since it is unworkable to discuss everything with the large number of 626 members. The final text, therefore, is most amenable to pressure at the moment a subject is being dealt with in a committee. This is why NGOs contact members of the committee or the Rapporteur at such an early point to voice their point of view, provide information, or even make concrete proposals for amendments. The (deputy) chairpersons of the committees and the coordinators are also important to the NGOs. Each parliamentary party has one coordinator. Together they take care of the political preparation and decide which subject will go to which parliamentary party in the committee. Parliament also keeps in touch with NGOs on a more formal basis, such as by means of hearings. These are organised by committees several times a year and present an opportunity for NGOs and other interested parties to voice their point of view. Parliament uses an accreditation system: registered NGOs can obtain a so-called 'laissez-passer.' This pass is valid for one year and grants NGOs access to the parliamentary premises to enable them to do their job there on the condition that they abide by a code of behaviour. This code implies they must always state which interest they represent, may not obtain information by unfair means, and may not profit from passing on to third parties copies of documents obtained in Parliament. Non-compliance with the code of behaviour can result in withdrawal of the laissez-passer.

9.3 European Council and COREPERs

Of all the institutions involved in decision-making, the Council is still the least accessible to NGOs. Council sessions are on the whole secret, and documents are not readily released. Often documents only become public when they are sent to institutions other than Parliament where they are dealt with in public. Sometimes, a detour via the national parliament is required to get hold of a document. Acts adopted by the Council are prepared by working parties under the direction of COREPER, which are the Permanent Representatives of the member states in the EU with the rank of ambassadors. The fifteen Permanent Representatives together form the Committee of Permanent Representatives, better known as COREPER. Under COREPER, there are numerous functional working groups with officials who prepare the subjects in the various policy fields. The Permanent Representatives prepare the activities of the Council and carry out the assignments given by the Council. COREPER makes its decisions on the basis of

the findings of functional working groups. On these working parties are national civil servants and representatives of various ministries. The Permanent Representatives on COREPER attempt to reach consensus on the various subjects. In addition, there are specialised committees that prepare decisions under the direction of COREPER. You might say that, within the Council, the decision-making core lies with COREPER. There are no formalised consultations between COREPER and the NGOs, but there are more and more informal consultations in order to make allowance for current affairs in society at large. Here too, close contacts within working parties and with the Permanent Representation are essential for NGOs.

Council ministers can be influenced by national NGOs groups. Important also is direct contact with relevant ministerial department staff and key administration civil servants.

9.4 How to lobby

Lobbying in the European Union does not necessarily depend on a permanent presence in Brussels or Strasbourg.

The simplest way to raise the voice is to send information (e.g. Position Papers) and lobby letters via mail or fax to the "lobby target." First direct contacts with people from the Commission and the Parliament are possible by inviting them as speakers to workshops or conferences.

It is also very important to identify and contact key persons on national level, who are involved in decision making processes on EU-level, e.g. administrative persons who are active in scientific and technical working groups or standing committees. National lobbying could influence the opinion and the vote of the respective Member States.

The most important thing for efficient lobbying is to co-operate with other NGOs. Building a network of expertise in different fields allows to bundle forces. It is more likely to be heard if several NGOs speak with the same voice and put pressure on the Commission or the Parliament. A good NGO network can also provide valuable information to a large number of people.

Sources to EU Decisions:

University Tilburg maintains DEsite, a didactic module, which focuses on the decision-making process within the European Union: <http://drcwww.kub.nl/dbi/instructie/eu/en/T1.htm>

EurLex, the portal to European Union law with links to Official Journals, Treaties, Legislation in force, Legislation in preparation, Case-law, Parliamentary questions, Documents of public interest: <http://europa.eu.int/eur-lex/en/>

PreLex, the database to monitor the decision-making process between institutions: <http://europa.eu.int/prelex>

10 Filling Policy Gaps - Pesticide Use Reduction as Precautionary Instrument

Human health and the environment in the European Union are not sufficiently protected from adverse effects of pesticide use. Previous chapters show that existing legislation fails to serve the public interest for safe food and clean waters. A directive on pesticide use reduction in Europe is missing. In order to fill this gap, PAN Europe suggested in 2002 a text for such a directive. With this text PAN Europe asks for a European legislation to reduce the frequency of pesticide applications (treatment frequency) by 25% in 5 years and by 50% in 10 years. In detail PAN Europe requires the following key element to be included in European legislation:

- Mandatory reduction plans for all Member States with targets and timetables for use reduction and increased percentage of land in organic farming, including, for each Member State, a target for use reduction measured according to the treatment frequency index and a target for increased land in organic farming, within 10 years from a baseline year.
- Mandatory Community-wide targets and timetables for achieving reductions of use of pesticides, initially to be measured by frequency of application.
- National action plans setting forth how each Member State will achieve the progressive reductions of uses of pesticides according to the targets and timetables in the Directive and in particular for all areas under control of public authorities and for agricultural uses.
- National studies to determine the feasibility and consequences of various scenarios for the progressive reduction or phasing out the use of chemicals for pest control, and to serve as a basis for Member States to determine how they will achieve the mandatory targets.
- EU-wide and national measures to reduce dependency on chemicals for pest control, including mandatory application of integrated pest management (IPM) for non-agricultural pest control situations and of integrated crop management (ICM) on all cultivated land not yet in organic farming. The measures should include expanded financial support for research and extension on pest control practices that minimise and, where possible, eliminate the use of pesticides and for conversion to organic farming and low input agriculture.
- Integrated Pest Management (IPM) and Integrated Crop Management (ICM) (whose standards have to be accurately defined by each Member State) as a minimum for all EU non-agriculture and agriculture pesticide uses. Cross-compliance with ICM should be a condition for Common Agricultural Policy (CAP) subsidies. ICM systems are highly likely to reduce incidence of pesticide leaching and impacts of pesticides in soils and to have a positive impact on the biodiversity of non-cropped species including macrofauna. If ICM results in slightly reduced yields, the reduced costs can however lead to higher profitability.
- CAP should ensure that small and medium sized farmers reducing their use of pesticides do not face a reduction in income. CAP should also provide more support for agri-environmental measures, especially for organic farming.
- Full access to information on pesticides held by authorities, including information supporting specific regulatory decisions in due time to allow for response from the general public.

- The revision of Directive 91/414/EC must ensure that pesticide active ingredients, including persistent, bioaccumulative, CMRs (carcinogenic or mutagenic or toxic for reproduction) or EDs (endocrine disruptors) are excluded from marketing and use.
- Pesticides classified as priority hazardous substances under the Water Framework Directive 2000/60/EC should be excluded from Annex I of Directive 91/414/EC.
- Mandatory training and certification of dealers and professional users of pesticides including farmers, according to minimum Community standards.
- Mandatory technical requirements for and regular inspection of pesticide application equipment and storage facilities.
- Coordinated monitoring and data collection of the impacts of pesticide use on human health and the environment, including long-term research programmes.
- Coordinated systems for collecting information on production, import, export, sales, distribution and use of pesticides, including mandatory record keeping and reporting of all applications of pesticides including amounts used per crop.
- Bans on applications of pesticides by aeroplanes and in pesticide vulnerable zones
- Access to information and public participation in regulatory decision making on pesticides on European and national level.

Sources:

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