Which Pesticides are Banned in Europe?

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There are still hundreds of pesticides in use in Europe for which there are serious, documented concerns for human health, including farm workers and rural residents exposed to drift. Credit: MRDGF

Introduction

"Which pesticides are banned in Europe?" This question is often asked by people in developing countries, ranging from companies exporting food produce, to government policy-makers, NGOs and journalists. Answering this question is not straightforward, as pesticide regulation in the European Union (EU) is a slow and complicated process and spans several different pieces of legislation. The status of pesticide approvals is continually changing as many of the older generation pesticides developed in the 1950s-1980s are under review, while newer products are appearing all the time. Hundreds of pesticide active ingredients are no longer registered for use in EU countries but this does not necessarily mean that each was banned for human or environmental health reasons. This briefing aims to summarise the situation and point to easily accessible sources for more detailed information.

On-going review and phase-out of pesticides in the EU

From the 1980s the EU started to implement a limited number of bans on specific pesticides, mainly persistent organochlorine compounds, due to growing evidence of human or environmental harm. For example, the decision to ban the persistent, organochlorine insecticide DDT was made in 1986. In 1991 an EU directive (79/117/EEC) consolidated decisions on 20 active ingredients, prohibiting their sale and use, because their application, even if applied according to label instructions, could cause harm (see Table 1). Eight of these are also banned for export, under the EU regulation 04/850 which implements the Persistent Organic Pollutants (POPs) or Stockholm Convention in Europe.

In 1992, the EU embarked on a full review of the approximately 1,000 different pesticide active ingredients used in the region for agricultural purposes at that time. Non-agricultural pesticides, known as biocides, e.g. timber treatments or for indoor pest control, are covered under separate legislation. Previously, agricultural pesticides (termed plant protection products in the EU) were regulated mainly at the level of individual Member State countries. A new authorisations directive, 91/414, harmonised the process of risk assessment and pesticide approvals across the EU. Since 1993, pesticide manufacturers applying to gain EU-wide approval for a specific pesticide have to submit new data to show that the substance can be used without unacceptable risks, meeting stricter standards on health and environmental safety than before. Agricultural pesticides that are given EU-wide approval are placed on Annex 1 of the authorisations directive 91/414.

Under this process, manufacturers decided not to submit for review around 320 active ingredients, for various reasons. Some were more or less obsolete or

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no longer profitable, having been superseded by newer substances. In other cases, companies realised certain pesticides would not pass the stricter safety testing requirements. Many of these unsupported pesticides belonged to acutely toxic organophosphate and carbamate groups, often in widespread use in other parts of the world. Unsupported pesticides had their registrations withdrawn, mostly in 2003, and can no longer be used in Member States.

Pesticides supported by the manufacturers with a full data set, are considered on a case by case basis by the European Commission (EC). Where the majority of Member State representatives on the decision-making committee consider that there is sufficient scientific evidence that a particular pesticide may cause harm, it is excluded from Annex 1 of the authorisation directive. Users are given a specified time period, usually 12 months, to use up stocks, after which time it cannot be sold or used.

So what constitutes a ban?

There is no totally clear answer to this, but withdrawal of registration approval alone is not sufficient. The global Prior Informed Consent (PIC), or Rotterdam, Convention creates a system of information exchange regarding human health and safety and environmental hazards relevant for certain pesticides and industrial chemicals imported and exported around the world. The goal of the Convention is to alert governments, especially in developing countries, to chemicals which have been banned or severely restricted by other countries. The PIC Convention defines a banned chemical as a *"chemical all uses of which, within one or more categories, have been prohibited by final regulatory action in order to protect human health or the environment"*. These may be new pesticides that fail to gain registration approval or older ones withdrawn by industry or which fail re-registration, but they must be accompanied by clear evidence that the action has been taken to protect human health or the environment. Not all of the approximately 500 active ingredients which have now been withdrawn from the EU market under the review process therefore qualify as bans. In some cases a manufacturer's voluntary withdrawal may be considered by the EC to be a ban or severe restriction.

By April 2008 PAN UK has detailed a total of 109 active ingredients and hazardous formulations either banned or severely restricted in the EU (Table 1), which include 21 banned before the start of the EU's review process in 1992. Table 1. includes information on pesticides which have been banned either for agricultural use ('plant protection products') and/or for biocide and other uses. In some cases the ban was phased in- four active ingredients (aldicarb, atrazine, simazine and endosulfan) were given "essential use" derogations for continued use in a limited number of crops and EU countries until end December 2007.

Thirty-one active ingredients have been, or are in the process of being, notified by the EU under the PIC Convention. To qualify for PIC notification, a chemical must be banned or severely restricted within the EU within an entire PIC Convention use category. For pesticides, this means that the EU must have banned or severely restricted the use of the active ingredient in both subcategories of plant protection products and biocides and other uses.

The EC decision documents on whether an active ingredient is approved or not for use in the EU provide summary information on the human and environmental hazard and risk issues taken into account in each decision. The European Chemicals Bureau, an EU agency, then assesses each regulatory decision to see if it qualifies as a ban or severe restriction. Some decisions to exclude specific active ingredients for agricultural use under the authorization directive 91/414 noted that the level of operator exposure was unacceptable even when using full, modern personal protective equipment and taking correct precautions.

Of the total pesticides banned in the EU, almost all of PAN's international Dirty Dozen pesticides (actually covering 17 different pesticide groups) have now been banned, with the notable exception of the highly hazardous herbicide, paraquat. Paraquat was given EU-wide approval in late 2003, after serious controversy and political disagreement between Member States. However, this approval was annulled by the July 2007 ruling of the EU court, to which Sweden and three other Member States had appealed in 2004 to question the legality of the EC decision. The EC in August 2007 instructed Member States to revoke national authorisations of all paraquat products. PAN groups worldwide continue to campaign for a paraquat ban, along with another highly problematic insecticide, endosulfan, which the EU has also banned (although it was permitted "essential use" until 2008 in some cases, mainly tomato and cotton in some Mediterranean countries).

Under prevailing conditions of use of pesticides in developing countries, farmers and workers often lack basic protective clothing, hazard awareness or hazard avoidance measures. Credit: Barbara Dinham

So if a pesticide is not banned, does that mean it's safe?

Absolutely not! Most EU approval decision documents come with legal requirements for 'risk mitigation measures' to reduce exposure risks and potential harm, often with detailed restrictions on use to try and protect operators, bystanders, wildlife or avoid contamination of water, air and soil. These restrictions must be put on the label instructions and their compliance should be monitored.

Paraquat gives a good example of what can go wrong when people mistakenly, or deliberately, equate EU registration with 'safety'. After the EU decided to approve paraquat in 2003, the main manufacturer of paraquat, Syngenta, together with Malaysian palm oil companies, tried to argue that the herbicide is 'safe', citing the EU approval decision and put heavy pressure on the Malaysian government to lift the national ban on paraquat which that country had set in 2002. They placed adverts in Malaysian newspapers arguing that "based on the European Union's findings …the pesticide no longer posed a danger to health." These adverts completely ignored the 13 different restriction and impact monitoring measures imposed by the EU on paraquat use, including the prohibition of knapsack spraying for home garden use, by amateurs or professionals; risk assessment and mitigation measures to protect ground-nesting birds, hares and aquatic organisms; and mandatory inclusion in all paraquat formulations of warning colorant, stench and vomit-inducing agents to reduce the risk of accidental or intentional swallowing.

In practice, risk mitigation measures are not adequate to protect against risks and their enforcement is problematic, as recent paraquat poisoning incident evidence shows, even in the context of well-educated and well-resourced European users. Since 2003, hundreds of cases of occupational, accidental and intentional paraquat exposure have been recorded in Europe. In 2004, according to Syngenta's own data, there were 59 cases of occupational exposure and 84 cases of accidental and intentional exposure, including some fatalities. In developing countries, low education levels, poor hazard-awareness, poverty, farmers' lack of knowledge, resources and protective equipment and inadequate government controls on pesticide use combine to make the risk of poisoning far more likely when farmers and farm workers handle toxic pesticides.

Although many hazardous pesticides have been withdrawn from the European market in recent years, there are still many registered for which there are serious, scientifically documented concerns for human health, particularly for longer-term health effects including harm to the nervous, immune, hormone and reproductive systems. PAN Europe identified 45 pesticides in use in 2008 which are classified by the EU as cancer-causing, toxic to the reproductive system, capable of damaging genes, or disrupting the hormone system (see Further Reading).

What about private sector food company restrictions on pesticides?

Most food companies in developed countries are now paying close attention to food safety issues, particularly pesticide residues in food. Maximum Residue Level (MRL) recommendations for pesticides are established globally by Codex Alimentarius, a joint FAO/WHO programme to protect

Up to date information on EU pesticide regulations is essential for all those involved in African export horticulture. Credit: PAN Africa

the health of consumers and ensure fair trading practices in food trade. While many developing countries depend on Codex MRLs to set acceptable pesticide residue levels in their own countries, industrialised countries have generally set national standards. The MRL requirements in the EU and some of the private-sector initiatives can be more stringent than those established under Codex and place significant demands on producers wishing to export or sell to these markets. EU residue legislation is handled separately from pesticide approvals regulations.

This briefing does not cover issues of legal requirements for growers exporting food produce to the EU on compliance with residue or other pesticide use aspects. Full information on residue legislation can be found via the EC Health & Consumer Protection website. A helpful guide on EU legal requirements for horticulture suppliers in countries exporting to the EU has been produced by the Agrifood Standards programme (see Where to find more information).

Disclaimer: EU pesticide legislation, particularly the regulatory status of individual active ingredients, is continuously changing. PAN UK cannot be held responsible for the validity of the information in this briefing. Readers should make sure to use official EU sources and particular requirements of commercial customers in all decision-making on pesticide use and compliance with EU legal and private sector requirements.

With more concern in food supply chains to address ethical, environmental and social issues in agriculture, including worker poisoning , many different voluntary food assurance and labelling schemes are now taking action beyond residue reduction, to cut back on pesticide use or prohibit the use of particular pesticides. It is beyond the scope of this briefing to describe these in detail. Many go beyond legal requirements. Several, such as Fair Trade and Rainforest Alliance certified schemes, prohibit farmers in their supply chains from using pesticides listed in the PIC Convention and banned under the Stockholm Convention on Persistent Organic Pollutants,

Substance	Use limitation	Regulation/Directive (Regulatory Decision excluding substance from Annex I of Directive 91/414)
1,3,-dichloropropene	Ban	777/2006 (02/2076)
2,aminobutane (sec-butylamine)	Ban	777/2006 (02/2076)
2,4,5-T and its salts and esters	Ban	777/2006 (02/2076)
Acephate*	Ban	1212/2003 (03/219)
Acifluorfen	Ban	777/2006 (02/2076)
Alachlor *	Ban	304/2003 (06/966)
Aldicarb*	Severe restriction as plant protection product. Ban on other uses.	1212/2003 (03/219) 777/2006
Aldrin	Ban and export ban	79/117/EEC (1991) + 850/2004 (1)
Ametryn	Ban	777/2006 (02/2076)
Amitraz *	Severe restriction	775/2004 (04/247)
Arsenic compounds	Severe restriction	Noted in 304/2003
Atrazine*	Severe restriction as plant protection product. Ban on other uses.	775/2004 (04/247)
Azinphos-ethyl	Ban	777/2006 (95/276)
Azinphos-methyl	Ban as plant protection product	1376/07 (05/1335)
Bensultap	Ban	777/2006 (02/2076)
Binapacryl	Ban	79/117/EEC (1991)
Cadusafos*	Ban	1376/07 (07/428)
Calciferol	Ban as plant protection product	777/2006(04/129)
Captafol	Ban	79/117/EEC (1991)
Carbaryl*	Ban	1376/07 (07/355)
Carbofuran*	Ban	1376/07 (07/416)
Carbosulfan*	Ban	1376/07 (07/415)
Cartap	Ban	777/2006 (02/2076)
Chinomethionat	Ban	777/2006 (02/2076)
Chlordane	Ban and export ban	79/117/EEC (1981) + 850/2004
Chlordimeform	Ban	Noted in 304/2003
Chlorfenapyr*	Severe restriction	Noted in 304/2003
Chlorfenvinphos	Ban	777/2006 (02/2076)
Chlormephos	Ban	777/2006 (02/2076)
Chlorobenzilate	Ban	2076/2002 (00/626)
Chlozolinate*	Ban	Noted in 304/2003 (00/626)
Cholecalciferol	Ban as plant protection product	777/2006 (04/129)
Coumafuryl	Ban	777/2006 (04/129)
Crimidine	Ban as plant protection product	777/2006 (04/129)
Cyanazine	Ban	777/2006 (02/2076)
Cyhalothrin	Ban	Noted in 304/2003 (94/643)
DDT	Ban and export ban	79/117/EEC (1986) + 850/2004
Diazinon	Ban as plant protection product	1376/07 (07/393)
Dichlorvos	Ban as plant protection product	1376/07 (07/387)
Dicofol containing less than 78% p,p*-Dicofol or more than 1 g/kg of DDT and DDT related compounds*	Ban	79/117/EEC (1991) 777/2006
Dieldrin	Ban and export ban	79/117/EEC (1981) + 850/2004
Dimethenamid*	Ban	1376/07 (06/1009)
Dinobuton	Ban	777/2006 (02/2076)
Dinoseb, its acetate and salts	Ban	79/117/EEC (1991)
Dinoterb*	Ban	Noted in 304/2003 (98/269)
Diuron	Ban as plant protection product	1376/07 (07/417)
DNOC	Ban	Noted in 304/2003 (99/164)
Endosulfan*	Ban as plant protection product	777/2006 (05/864)
Endrin	Ban and export ban	79/117/EEC (1991) + 850/2004
Ethion	Ban	777/2006 (02/2076)
Ethylene dichloride	Ban	79/117/EEC (1989)
Ethylene dibromide (1,2 dibromoethane)	Ban	79/117/EEC (1988)
Ethylene oxide	Ban as plant protection product	79/117/EEC (1991)
Fenitrothion	Ban as plant protection product	1376/07 (07/379)
Fenpropathrin	Ban	775/2004 (02/2076)
Fenthion*	Severe restriction	775/2004 (04/140)
Fentin acetate*	Severe restriction	Noted in 304/2003 (02/478)
Fentin hydroxide*	Ban	Noted in 304/2003 (02/479)
Fenvalerate	Ban	Noted in 304/2003 (98/270)
Ferbam	Ban	Noted in 304/2003 (95/276)
Fluoroacetamide	Ban as plant protection product	777/2006 (04/129)
Flurenol	Ban	777/2006 (04/129)
Furathiocarb	Ban	777/2006 (02/2076)

Haloxyfop-R*	Ban	1376/07 (07/437)
HCH containing less than 99.0% of the gamma isomer	Ban	79/117/EEC (1981)
Heptachlor	Ban and export ban	79/117/EEC (1984) + 850/2004
Hexachlorobenzene	Ban and export ban	79/117/EEC (1981) + 850/2004
Hexazinone	Ban	777/2006 (02/2076)
Iminoctadine	Ban	777/2006 (02/2076)
Isoxathion	Ban as plant protection product	777/2006 (02/2076)
Lindane (gamma-HCH)	Ban as plant protection product Severe restriction for other uses	Noted in 304/2003 (00/801)
Malathion	Ban as plant protection product	1376/07 (07/389)
Maleic hydrazide and its salts, other than choline, potassium and sodium salts; choline, potassium and of sodium salts maleic hydrazide containing more than 1 mg/kg of freehydrazine expressed on the basis of the acid equivalent	Ban as plant protection product Severe restriction for other uses	79/117/EEC (1991)
Mercury compounds including mercuric oxide, mercurous chloride (calomel): other inorganic mercury compounds: alkyl mercury compounds: and alkoxyalkyl and aryl mercury compounds	Ban as plant protection product Severe restriction for other uses	79/117/EEC (1991,1992)
Methamidophos	Ban for non plant protection pesticide uses. Plant protection use given only 18 month authorisation, until June 08.	777/2006 06/131
Methidathion	Ban	777/2006 (04/129)
Metoxuron	Ban	777/2006 (02/2076)
Mirex	Ban and export ban	850/2004
Monocrotophos	Ban	1212/2003 (02/2076)
Monolinuron	Ban	Noted in 304/2003 (00/234)
Monuron	Ban as plant protection product	777/2006 (02/2076)
Nitrofen*	Ban	79/117/EEC (1988)
Nonylphenol ethoxylate*	Ban	775/2004 (02/2076)
Omethoate	Ban	777/2006 (02/2076)
Oxydemeton-methyl*	Ban	1376/07 (07/392)
Parathion	Ban	Noted in 304/2003 (01/520) 777/2006
Parathion methyl (methyl parathion)*	Ban	Noted in 304/2003 (03/166) 777/2006
Pebulate	Ban	777/2006 (02/2076)
Pentachlorophenol and its compounds	Ban as plant protection product Severe restriction for other uses	91/173/EEC
Permethrin	Ban as plant protection product	Noted in 304/2003 (00/817)
Phosalone*	Ban	1376/07 2006/1010
Phosphamidon	Ban	777/2006 (02/2076)
Propham	Ban as plant protection product	Noted in 304/2003 (96/586)
Pyrazophos*	Ban	Noted in 304/2003 (00/233)
Quintozene*	Ban	79/117/EEC (1991) (00/816)
Scilliroside	Ban as plant protection product	777/2006 (04/129)
Simazine*	Severe restriction)	775/2004 (04/247)
Strychnine	Ban as plant protection product	777/2006 (04/129)
Tecnazene*	Ban	Noted in 304/2003 (00/725)
Terbufos	Ban	777/2006 (02/2076)
Thallium sulphate	Ban as plant protection product	777/2006 (04/129)
Thiocyclam	Ban	777/2006 (02/2076)
Thiodicarb	Ban	1376/07 07/366)
Toxaphene (camphechlor)	Ban and export ban	79/117/EEC (1984) + 850/2004
Triazophos	Ban	777/2006 (02/2076)
Trichlorfon*	Ban	1376/07 (07/356)
Tridemorph	Ban	777/2006 (04/129)
Triorganostannic compounds * (tributyltin compounds)	Severe restriction	Noted in 304/2003 02/2076)
Vamidothion	Ban	777/2006 02/2076)
Zineb	Ban as plant protection product	Noted in 304/2003 01/245)
Dustable powder formulation containing a combination of: Benomyl at or above 7% Carbofuran at or above 10% Thiram at or above 5%	Ban	777/2006

Table 1. Active ingredients banned or severely restricted in the European Union)

** Chemicals qualifying for PIC notification by the EU because they are banned or severely restricted within EU as pesticides.*
Sources:
Council Directive 79/117/EEC prohibiting the placing on the market and use of plant protection products containing certain active substances.
Regulation (EC) of the European Parliament and of the Council no. 304/2003 concerning the export and import of dangerous chemicals. Annex 1 Part 1 listing chemicals subject to export notification procedure and Part 2 listing chemicals qualifying for PIC notification. Available on European Database Export Import of Dangerous Chemicals (EDEXIM) website, managed by the EU European Chemicals Bureau/Joint Research Centre. http://edexim.jrc.it/index.php?id_left=0 Accessed 20-03-08

Guide to regulation (EC) of the European Parliament and of the Council no. 304/2003 concerning the export and import of dangerous chemicals. European Commission, 2004.

Commission Regulation (EC) no. 777/2006 amending Annex I to Regulation EC 304/2003.

Commission Regulation (EC) no. 1376/2007 amending Annex I to Regulation EC 304/2003.

Council Regulation (EC) 850/2004 on persistent organic pollutants and amending Directive 79/117/EEC. This regulation implements the Stockholm POPs Convention in the EU.

and prohibit or reduce the use of the most acutely toxic compounds, as identified by the World Health Organisation (see PAN UK Food & Fairness case study *'Reducing hazardous pesticide practice in coffee supply chains*' for a comparison of six standards schemes).

The Integrated Production certification operated by the International Organisation for Biological Control (IOBC) operates a 'traffic light' scheme with red (prohibited), yellow (restricted) and green (unrestricted) pesticides. Several European supermarkets now also operate individual pesticide policies with lists of dozens of particular prohibited and restricted pesticides. GlobalGAP, the main food assurance scheme across the retail sector (formerly known as EurepGAP), stipulates only that suppliers must use pesticides registered in the country of crop production and prohibits use of the 20 or so compounds banned under EU directive 79/117/EC. The situation is evolving rapidly in the European food sector and in developing country home markets and it is essential that farmers find out precisely which pesticide restrictions and requirements are demanded by their clients in specific supply chains, in addition to legal and private sector requirements on maximum levels of pesticide residues permitted in different food crops.

These food chain initiatives to remove use of the most hazardous pesticides can help protect farmer and farm worker health as well as that of consumers. However, it is vital that food chain requirements are accompanied by proper technical advice, training and market incentives to help farmers shift to safer methods of pest management. Without assistance, small-scale, family farmers in Europe and in developing countries may be excluded from these markets, if they are not aware of requirements, have difficulty demonstrating that they have complied or need support (financial and advisory) to adopt the practices and standards. Government policies that actively promote wider uptake of organic and reduced pesticide farming methods are essential to complement food chain sector initiatives.

Where to find more information

It is not easy to find or understand information on the website run by the EC Health & Consumer Protection Directorate in charge of agricultural pesticide approvals, while new regulatory decisions may take months to appear on the website. The information sources listed below provide simpler and more useful resources:

PAN Europe's website provides easy to read compilation lists of banned, withdrawn and approved EU pesticides and information on EU policy, risk assessment and what needs to change to better protect human health. It has links to relevant sections of the EU websites. A new Paraquat Watch section details the recent regulatory and legal changes on EU status of this herbicide.
http://www.pan-europe.info/

PAN UK's List of Lists gives a highly valued, authoritative and print-friendly guide to the different official pesticide hazard classifications (NB Tables in this version not updated since Dec 2005 but this mainly concerns EU regulatory decisions taken since then).
http://www.pan-uk.org/Publications/Briefing/list%20of%20lists%202005.pdf

PAN North America's excellent database allows you to search for hazard information by chemical and trade name for thousands of pesticides.
http://www.pesticideinfo.org/Index.html

COLEACP Pesticide Initiative Programme site provides guidance on all aspects of pesticide compliance for exporters from developing countries.
http://www.coleacp.org/FO_Internet/Pip/Default.asp

GlobalGAP website has useful information on aspects of pesticide compliance and handling.
http://www.globalgap.org/

The UK's Pesticide Safety Directorate website has a lot of user-friendly information on EU regulatory policy and provides regular news of latest EU and UK decisions.
http://www.pesticides.gov.uk

PAN UK's web pages 'Hidden Extras' gives our perspective on food residue hazards and the shortcomings of government risk assessment and monitoring.
http://www.pan-uk.org/Projects/Food/index.htm

EC Health & Consumer Protection Directorate (DGSanco) website has all the detailed information on agricultural pesticide authorisations and maximum residue levels permitted.
http://ec.europa.eu/food/plant/protection/evaluation/index_en.htm

EC DGSanco summary decision documents on whether a particular active ingredient is approved or not for use as a plant protection product can be viewed via
http://ec.europa.eu/food/plant/protection/evaluation/framework_en.htm

EC Environment Directorate website has all the detailed information on pesticide authorisations for biocide and other non-agricultural uses.
http://ec.europa.eu/environment/biocides/

European Chemical Board/Joint Research Centre website details official EC documents relating to dangerous chemicals and PIC Convention implementation in the EU under Council Regulation EC 304/2003 concerning the export and import of dangerous chemicals.
http://edexim.jrc.it/

The Rotterdam Convention pages of the ECB/JRC website provide the most up to date lists of pesticides and industrial chemicals banned or severely restricted in the EU which qualify for export notification and PIC notification. You can search by chemical name to see a summary of the regulatory status and legal information and also access legislation decision documents organised by date under the agricultural (91/414) and biocide (98/8) pesticide directives at the European Database Export Import of Dangerous Chemicals (EDEXIM) website
http://edexim.jrc.it/index.php?id_left=0

EU legal requirements for imports of fruits and vegetables. A suppliers' guide. (2006) Fresh Insights no. 1, International Institute for Environment & Development, Natural Resources Institute and Department for International Development, UK. Available via
www.agrifoodstandards.org

Further Reading

Briefings in the Food & Fairness series :

- Which pesticides are banned in Europe?
- Hidden costs of pesticide use in Africa
- The FAO Pesticide Code of Conduct:new responsibilities for food companies
- Pesticide food and drink poisoning in Africa
- Pesticides, immune suppression and HIV/AIDS
- Hazardous pesticides and health impacts in Africa

The Chemical Trap: Stories from African fields. PAN UK, 2007.

Food & Fairness case studies:
No. 1. Smallholder, pesticide and food safety issues in horticulture supply chains.
No. 2. Reducing hazardous pesticide practice in coffee supply chains.

Living with Poison. Problems of endosulfan in West African growing systems. PAN UK, London, 2006.
http://www.panuk.org/Projects/Cotton/Resources/index.html#other

The Deadly Chemicals in Cotton. A new report by Environmental Justice Foundation in collaboration with PAN UK, 2007.

PAN UK publications with African partners in the African Stockpiles Programme
www.pan-uk.org/Projects/Obsolete/index.htm

An analysis of the Commission's proposals for 'cut off criteria' and candidates for substitution. PAN Europe, 2008.
www.pan-europe.info

PAN UK's project *Food & Fairness: changing supply chains for African health and welfare* addresses issues of food safety, quality and environmental requirements in European markets and impacts on smallholder livelihoods in African horticulture and commodity crops. One theme is how food export, retail and processing companies could combine support for small and medium growers with efforts for pesticide residue reduction and safer pest management, as part of corporate social responsibility. Another is how to develop consumer demand and incentives for safer food and farming in African local markets.

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Over 100 hazardous active ingredients have been taken off the EU market for health and environmental reasons. Many, such as endosulfan, are widely used in developing countries, often by smallholder farmers with no training.
Credit; PAN UK

For more information, please visit the PAN UK Food & Fairness webpages via *http://www.pan-uk.org/Projects/Fairness/* or contact Stephanie Williamson, International Project Officer (Food & Fairness) at PAN UK email stephaniewilliamson@pan-uk.org

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Food & Fairness project partners are:
PAN Africa in Senegal
www.pan-afrique.org
PAN Germany
www.pan-germany.org
Netherlands Society for Nature & Environment
www.natuurenmilieu.nl