

Startling figures reveal pesticide health assaults

In the decades since the 'Green Revolution' of the 1960s the negative impacts of pesticides have spawned a great wealth of literature. Burgeoning evidence continues to accumulate in academic periodicals, while accounts of poisoned ecosystems and contaminated food chains have long since ventured from the university to the high street bookstore. Under the circumstances it takes a brave author to look for a new analysis on such well trodden ground.

'Pesticides: a toxic time bomb in our midst' by Emeritus Professor Martin J. Levine revisits the issue of pesticides and succeeds in uncovering some startling new insights along the way. The book is comprehensive, logical and fastidiously researched. Its chapters are punctuated with novel and genuinely thought provoking facts and figures. And the study benefits from Levine's ability to approach the material with fresh eyes and to address questions that previous authors never thought to ask.

Levine's book is unashamedly focused on the US. This is perhaps no bad thing. It helps understand a great deal more about some important differences in the pesticides situation in Europe versus America. (Like, why is groundwater such a big deal in the US? Because 50% of US citizens rely on it for drinking water! This is not the case in the EU – hence groundwater scores better as a priority issue in the US). At the same time, given the leadership role of the EU in shaping future trends in global chemicals regulation, one could well argue that a book focusing on pesticides use in Europe would be more useful to an international audience.

Yet while Levine's work is packed with useful information, it lacks the kind of authority associated with expertise and tends to rely more on facts than on understanding. In places the analysis reads like an almanac, while overall the book could have done with a clearer narrative or plot. Unmistakably this is the work of an academic, not a journalist.

Inspired by 'Pesticides: a toxic time bomb in our midst' below is a shortlist of useful and thought provoking material uncovered by Levine. It's not a book to take on holiday – but you will want a pen handy when you read it.

Farmworkers

- Of the 25 most heavily used US agricultural pesticides, five are toxic to the nervous system, 18 are skin, eye, or lung irritants, 11 are classified by the United States Environmental Protection Agency (US EPA) as carcinogenic, 17 cause genetic damage, and 10 cause reproductive problems in tests on laboratory animals
- Nearly 400,000 young children in the

US live on farms. An additional five million agricultural workers live near farms many of whom have children

Agronomy

- It is estimated that more of the US food supply is lost to pests today (37%) than in the 1940s (31%)

Food Standards

- According to data from the United States Department of Agriculture, more than 600,000 children under age six get an unsafe dose of neurotoxic pesticides in food each day.
- Between 80 and 100% at five of 12 Food and Drug Administration regional laboratories are not capable of detecting 80 percent of the pesticides used in agriculture.

Water Resources

- Around 50% of US citizens rely on groundwater for drinking water. In some rural areas the figure exceeds 95% of the population
- For hundreds of Mid-Western communities, pesticide run off to rivers and streams results in tap water commonly contaminated with five or more weed killers during peak runoff each spring and summer

Biocides

- A survey by the US EPA revealed 47% of households with children under the age of five have at least one pesticide stored within reach of children
- The top 10 biocides use most frequently in US households are: 2,4-D, diazinon, carbaryl, methoxychlor, chlordane, chlorpyrifos, malathion, maneb, simazine and captan

Public Health

- Data from the US EPA suggests US physicians diagnose between 10,000 to 20,000 pesticide poisonings annually, while around 300,000 farmworkers suffer acute pesticide poisoning each year
- The US Bureau of Labor Statistics reports between 500 and 900 work-time illnesses caused by pesticide exposure (EC)

Pesticides: A Toxic Time Bomb in Our Midst, Marvin J Levine, 264 pp, \$49.95; Westport, CT, Praeger Publishers, 2007; ISBN-13: 978-0-2759-9127-2.

Organics and pesticide reduction in Cuba

This comprehensive account looks at the dramatic changes during Cuba's 'special period' in the 1990s following the collapse of the Soviet Union, when food, fuel and agrochemical imports plummeted, threatening national food security. While numerous books have described Cuban organic agriculture and urban food production programmes as the most notable responses to

the input crisis, this book examines changes in practice, policy and attitudes, analysing the perceptions of different farmers and state agencies and asks how far the country has really turned its back on synthetic agrochemicals. Contrary to some external reports, there was no governmental policy for all agriculture to become organic and agrochemical use continued in both large and small farms, state-run, cooperative or individual, albeit in far lower volumes than before. Larger urban vegetable production units, for example, sometimes used low levels of insecticides, although the Plant Protection Authority's national standard for urban agriculture prohibited pesticide use unless authorised by technicians from the local urban agriculture centres. Neighbours acted as watchdogs to report unauthorised use.

In food safety terms, the need to feed the population took priority over eliminating contaminants. Studies showed generally low pesticide residues in food during 1990-1995, except in tomato, onion and potato, crops prioritised by the government for agrochemical application. Concern for low-residue food was mainly confined to the tourism sector. In the farming sector, there was little concern for pesticide health impacts, although the health authorities prohibited use of organochlorines during this period. For mainstream farming, the state controlled access to agrochemicals although these also circulated on the black market. Around 65% of cooperative farms applied pesticides and most were anxious to use more, unless they had direct experience of organic alternatives. However, for most farms, the most significant problems constraining production during the 1990s was a lack of petrol, especially for irrigation and access to quality seeds and fertiliser.

By 2000, more agrochemicals had started to become available, with herbicides, plant growth regulators and other pesticide imports rising from 37,000 tonnes to over 50,000 tonnes by 2006. Nevertheless, it looks very unlikely that Cuba will return to its former industrialised agriculture approaches, dependent on high levels of imported agrochemicals. Official views have evolved to recommend integration of chemical and biological inputs and there is a broader appreciation of the feasibility and value of organic farming. The book identifies challenges to implementing widespread organic systems and highlights the importance of coherent policy support across farming, food and health and a sound understanding of agroecological principles among farming, extension and research communities.

Sustainable agriculture and food security in an era of oil scarcity. Lessons from Cuba. Julia Wright, 280pp, hardback £60, Earthscan, London, 2008, ISBN: 9781844075720.

Sick of pesticides: a new campaign to change policy

Despite being told that we are 'winning the war against cancer' the rates of many cancers have actually been increasing. Between 1971 and 1999 cancer rates in England and Wales rose 31% (this figure would be 47% if lung cancer is removed) among men and 41% among women¹. We are familiar with the usual suspects such as smoking and obesity. But, what of environmental factors, such as pesticides? At least one in every hundred cancers diagnosed each year in Europe may be directly related to pesticide exposure². For certain cancers, (breast, prostate, testicular, leukaemia and lymphomas) this could be considerably higher.

Scientific reviews have confirmed an association between household or occupational pesticide exposure and certain cancers, including leukaemia, brain tumours, Wilm's tumours, Non-Hodgkin's lymphoma, sarcomas and prostate cancer. Agricultural and manufacturing workers can be directly exposed at work. Occupational, long-term exposure carries the highest risk. Farmers handling pesticides have more than double the risk of developing Non-Hodgkin's lymphoma³. The impacts of occupational exposure on women are equally worrying. A study in America revealed that those who ever used herbicides, primarily through their occupations, had a 2.4 times higher risk of developing cancerous brain tumours than unexposed women⁴.

Although pesticides are left at work, the risk of cancer is carried home and can have a dramatic impact on children's risk of cancer, even before they are born. *In utero* exposure to hexachlorobenzene, a persistent organic pollutant that is banned under the Stockholm Convention, has been found to quadruple children's risk of developing testicular cancer later in life⁵. The exposure of either parent to pesticides up to one year before conception through to the first trimester of pregnancy can increase childhood risk of leukaemia by 2 to 3.5 times⁶.

Pesticides are also abundant in our food and water. Currently, more than half of food products in Europe contain pesticide residues, and 5% of these residues exceed the acceptable safe limit⁷. Children eating a conventional diet have pesticides in their bodies exceeding acceptable levels⁸.

The Health and Environment Alliance (HEAL), an international non-governmental organisation based in Brussels, is working to encourage wide public involvement on pesticide policy. In November 2008, HEAL launched a *Sick of Pesticides* campaign to raise awareness of the links between pesticides and cancer.

In January 2009, the EU tightened rules on pesticides to phase-out those associated with cancer, reproductive toxicity, hormone disruption, and genetic mutations. The newly approved EU pesticides reform also foresees a severe restriction of pesticide use

in public areas such as green spaces near schools, parks, and hospitals.

Transposing the legislation into UK law will require the UK government and other member states to collaborate with stakeholders to develop National Action Plans for pesticide use reduction. This represents an important opportunity for the public, NGOs, health professionals, local and regional authorities to contribute to an ambitious plan to achieve the highest possible level of health protection.

The *Sick of Pesticides* campaign began in France, where HEAL is working with the Movement for the Rights and Respect of Future Generations (MDRGF). It will be launched in the UK in Spring. In collaboration with a coalition of national groups including PAN UK and the Cancer Prevention and Education Society, the campaign aims to achieve a faster ban of superfluous cancer-causing pesticides (those recognised in EU legislation) and elimination of pesticides from public green areas.

HEAL's Pesticides and Cancer website (www.pesticidescancer.eu) provides updates on the initiative, information on how to join and act, and resources on pesticide-related diseases. A Facebook group *Sick of Pesticides* disseminates the latest news and comments.

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New PEX (Pesticide Exposure) information sheets

PAN UK has produced a new set of leaflets aimed at anyone affected by, or concerned about, pesticide exposure and health in the UK. These leaflets will be of particular interest to those who are at risk of higher levels of exposure, through their work, use of pesticides in the home or garden, or living nearby frequently sprayed areas.

For individuals experiencing health problems following pesticide exposure, there is little or no information available to guide them. It is rare that a causative link can be proven between exposure and illness, and even where a link can be made, there is little research into the best treatments. Those affected are often isolated and frustrated by the lack of knowledge. There are no easy answers. This set of leaflets is a useful introduction to the issues. *Pesticide Exposure: an introduction* explains what is meant by pesticide exposure, what to do in the event of an exposure, and how to report an incident. The two leaflets on *Pesticide Spraying: Your Rights* answer some common queries on pesticide use and UK law. The *Resources List* is useful for those seeking further sources of information and support. Finally, as many people affected explore a range of conventional and alternative approaches to managing their symptoms, the *Guidelines on seeing a private practitioner* suggests some important points to consider before embarking on a course of treatment. The leaflets are not intended to provide health advice and stress that anyone experiencing symptoms following exposure should seek medical attention.

- Pesticide Exposure: an introduction
- Pesticide Spraying: Your Rights (for urban areas)
- Pesticide Spraying: Your Rights (for rural areas)
- Pesticide Exposure Resources List
- Guidelines on seeing a private practitioner

Downloaded from <http://www.pan-uk.org/Projects/Exposure/briefings.html> or obtain hard copies from PAN UK.





PAN UK has launched a new website presenting stories from African farming communities which illustrate the damage caused by pesticide dependency and which show local initiatives to promote alternatives.

Awa Ndione is a young mother living in the intensive vegetable growing district of Diamniadio, Senegal. For several years she has been growing vegetables on her small plot of land and promoting women's economic development. She is an active member of the women's self-help group Yakaar (Hope), made up of 105 local women. Its main objectives are to improve its members' living standards by producing high quality fruits and vegetables, and more effective marketing. Read about how PAN Africa's training in Integrated Pest and Production Management (IPPM) during 2001-2003 has helped Awa and her Yakaar colleagues to cut back on the amount of expensive and harmful pesticides used on their vegetables.

Dr Francisca Katagira works for the Tanzanian Ministry of Agriculture as Principal Agricultural Officer and serves as her country's Designated National Authority for the Rotterdam Convention on Prior Informed Consent (PIC). The PIC is an important international convention which provides information for developing

countries on which pesticides have been banned. It helps government officials take better informed decisions on which pesticides they permit to be imported into their country. Like many African countries, Tanzania has serious problems in controlling the trade and use of highly toxic pesticides. Dr Katagira knows that farmers use a lot of pesticide unnecessarily. Read how collaboration with PAN on practical training has been useful to help Dr Katagira and her colleagues to appreciate some of the impacts of pesticide use and to initiate changes in practice.

Dr. Simplice Davo Vodouhé is the president of 'OPEPAB' (Organisation Béninoise pour la Promotion de l'Agriculture Biologique). He works with more than 500 organic cotton farmers, helping them to commercialise their crop and build socio economic infrastructures. He also works on pesticides issues, raising awareness of the dangers of using chemical pesticides like endosulfan. Davo has been documenting the havoc wreaked by this pesticide in Benin, to poor cotton farmers in particular, for more than 10 years.

Read 'African Voices' at <http://www.pan-uk.org/africanvoices/index.htm>

Moral fibre

Moral Fibre, PAN UK's new booklet, presents interviews with seven of the pioneers who set in motion the ethical evolution in fashion. It also presents profiles of the nine winners of the inaugural Organic by Design grant, a new generation who have learned how fashion can reinvent itself as an ethical and environmentally responsible industry.

Moral Fibre will be offered to students of fashion design at schools all across the UK. It will allow them to gain inspiration and knowledge from those already involved in creating ethical fashion. They can use it as a guide to better understand how organic cotton suppliers work and learn from the experiences of seasoned designers.



Download from www.WearOrganic.org

PAN International List of Highly Hazardous Pesticides

The PAN International List of Highly Hazardous Pesticides provides a catalogue of the most harmful pesticides that is more comprehensive, and takes into account more potential pesticide hazards, than current listings by official bodies.

The List of Highly Hazardous Pesticides was developed in response to a proposal of the Food and Agriculture Organisation (FAO), in November 2006, that the activities of FAO could include risk reduction, including a progressive ban on highly hazardous pesticides. PAN welcomes this decision, but strongly believes that there are serious shortcomings in the criteria being used to identify 'highly hazardous' pesticides. For example, endocrine disrupting properties, ecotoxicity, and inhalative toxicity are not included. Because of these shortcomings, PAN International has independently developed its own definition of "Highly Hazardous Pesticides", with a more comprehensive set of indicators.

The PAN International List of Highly Hazardous Pesticides, together with an explanation of the classifications used to compile it, is now available to download from <http://www.pan-germany.org/> or from http://fao-code-action.info/action_centre.html

List of Lists – 3rd edition

An invaluable resource for anyone working in the field of pesticides, PAN UK's List of Lists provides a convenient reference for identifying those pesticides associated with particularly harmful health and environmental impacts. Compiled primarily from official sources, such as the World Health Organisation, and the US Environmental Protection Agency, it also includes several lists from public interest organisations which have been influential in drawing attention to hazardous pesticides.

Following positive feedback from retailers, NGO's and other stakeholders, PAN UK has produced this third revised and updated edition, which has been independently reviewed and is fully referenced. The List of Lists covers pesticides which are: banned under international conventions; classified as hazardous by the World Health Organisation; carcinogenic or endocrine disrupters; banned in the European Union; and many others. The third edition also incorporates a list of endocrine disrupters compiled by Our Stolen Future, a group of independent scientists, and, in the context of international concern about declining bee populations, a section on pesticides highly toxic to bees.

Download from <http://www.pan-uk.org/Publications/Publist/listoflists2009.pdf>

PAN UK – Making a difference

Pesticide Action Network UK works to eliminate the dangers of toxic pesticides, our exposure to them, and their presence in the environment where we live and work. Nationally and globally we promote safer alternatives, the production of healthy food and sustainable farming.

Pesticide Action Network UK is an independent, non-profit organisation. We work around the world with like-minded groups and individuals concerned with health, environment and development to:

- Eliminate the hazards of pesticides
- Reduce dependence on pesticides and prevent unnecessary expansion of use
- Increase the sustainable and ecological alternatives to chemical pest control

- Please send me the Pesticide Action Network UK Annual Review 2007.
- Please send a full publications list.

You can subscribe to Pesticides News, donate to PAN UK and buy our publications at www.pan-uk.org

Recent publications

- Moral Fibre, a guide to sustainable fashion for fashion students, available at www.WearOrganic.org
- List of Lists, a 2009 version of our popular briefing collating hazard lists for pesticides, available at www.pan-uk.org/Publications/publist/listoflists2009.pdf
- PEX Information Sheets, for anyone affected by exposure to pesticides, available at www.pan-uk.org/Projects/Exposure/briefings.html
- Reducing hazardous pesticide practice in coffee supply chains, 2008, available at www.pan-uk.org/Projects/Fairness/documents.html



- Smallholder and pesticide issues in fresh fruit and vegetable supply chains, 2008, available at www.pan-uk.org/Projects/Fairness/documents.html
- Food and Fairness briefings, 2007, a series of briefings for food companies, NGOs, African pesticide regulators and donors, available at www.pan-uk.org/Projects/Fairness
- Pesticides on a plate; a consumer guide to pesticide issues in the food chain, 2007, available at www.pan-uk.org/Projects/Fairness

Periodicals

Pesticides News – the most comprehensive quarterly source of information on pesticide problems and alternative developments. Extensive articles, resources, book reviews and news on UK, European and global issues.

Current Research Monitor – an invaluable resource for researchers. This lists up-to-date scientific and specialist research covering the impact of pesticides on health and the environment. Includes abstracts, research lists and conference details.

PEX Newsletter – quarterly information and news sheet for people whose health has been affected by pesticides or who are concerned about the health effects of pesticides.

Subscription details

£160 – Full corporate subscribers (commercial organisations and government departments) can receive up to four copies of Pesticides News and Current Research Monitor. Other benefits include all new PAN UK publications and books free of charge.

£90 – Basic corporate subscribers receive one copy of Pesticides News and Current Research Monitor.

£50 – Non-commercial subscribers (non-governmental/non-profit/academic organisations) are entitled to Pesticides News, Current Research Monitor, and the PEX Newsletter.

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