



Highly hazardous pesticides from BASF, Bayer, and Syngenta!

Results of an international investigation



Abbreviations / Glossary

acaricide	An agent that combats mites and ticks
FAO	Food and Agriculture Organisation of the United Nations
fungicide	An agent that kills or inhibits the growth of fungi
hazard	In assessing hazards the dangerous properties (e.g., sensitising, carcinogenic, or toxic, for example for aquatic animals) and the degree of toxicity of a chemical in relation to these dangerous properties are determined. (See also the term "risk".)
herbicide	A pesticide designed to control or kill herbaceous plants and grasses
insecticide	A pesticide used to kill or prevent the growth of insects
molluscicide	An agent used to kill molluscs such as snails
nematicide	An agent that kills nematodes (microscopic, worm-like organisms)
repellent	Any chemical that can be used to drive away insects or other pests
risk	In assessing the risks of pesticides, two aspects are important: a) identification and assessment of the hazards resulting from the pesticide's properties and b) assessment of exposure dependent on the specific use. The risk posed by a particular pesticide in connection with various uses is then estimated based on the hazards associated with it and the potential exposure of organisms other than the pesticide's target. (See also the term "hazard")
rodenticide	An agent used to control or kill rats and other rodents
WHO	World Health Organisation of the United Nations

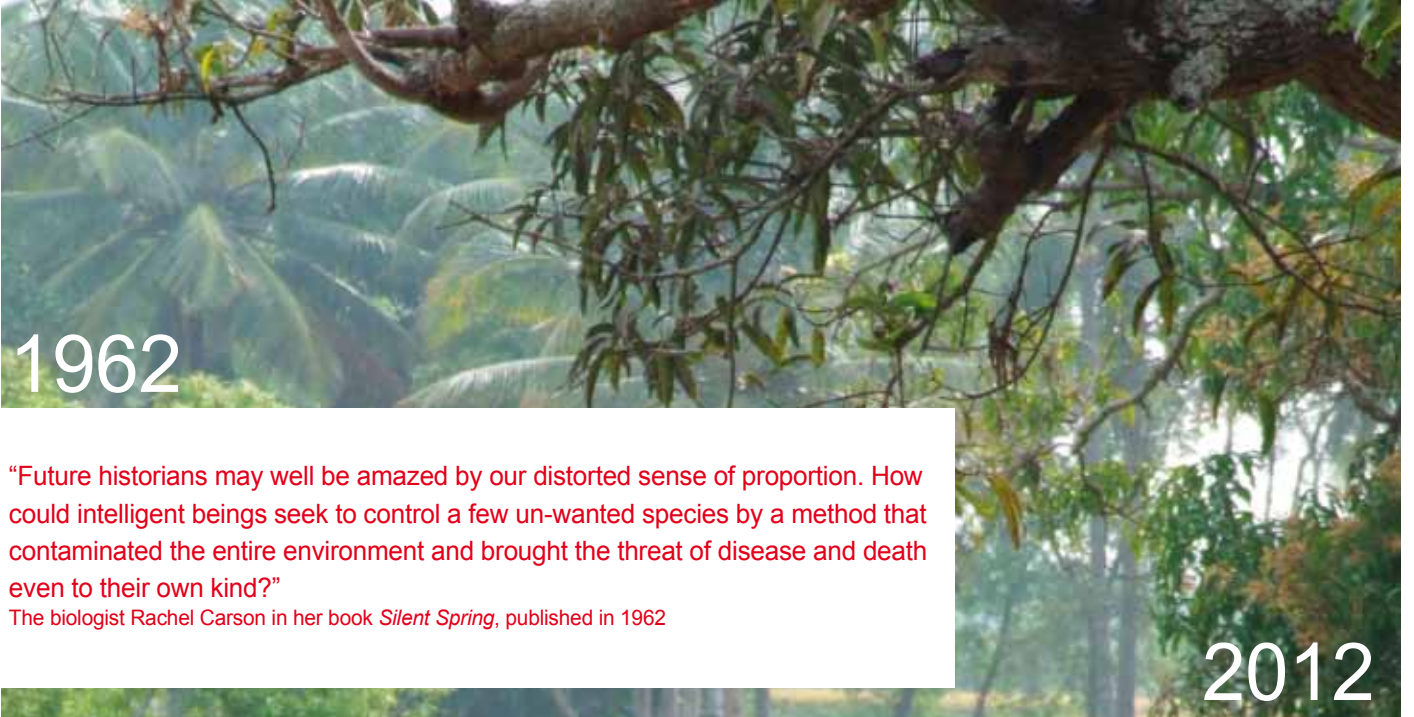
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1962

“Future historians may well be amazed by our distorted sense of proportion. How could intelligent beings seek to control a few un-wanted species by a method that contaminated the entire environment and brought the threat of disease and death even to their own kind?”

The biologist Rachel Carson in her book *Silent Spring*, published in 1962

2012

“We are in the midst of a transformation process. Since the so-called ‘Green Revolution’ in the late 1950s, we have pursued high-performance agriculture with industrial means. We have used fertilizer, pesticides and machines without considering the side effects. We know today that many of these things are unnecessary and don’t produce the desired results. Monocultures led to soil erosion, depleted fields, over-fertilization and poisoned groundwater. (...) It took us 100 years to introduce chemistry into agriculture. We can get rid of it much more quickly.”

Director-General of the UN Food and Agriculture Organization (FAO), José Graziano da Silva in an interview with the German news magazine *Der Spiegel* in February 2012



Why have we undertaken this investigation?

Highly hazardous pesticides are a cause of damage to human health and the environment — not only, but especially in developing countries. That this is the case is supported by evidence, including the results of an extensive global study by PAN International on pesticide use based on more than 2000 interviews. The results were published in 2010 in the book *Communities in Peril – Global Report on Health Impacts of Pesticides Use in Agriculture* (PAN International 2010). **For Africa, Asia, and Latin America, the study concludes that on these continents**

- **highly hazardous pesticides are used frequently,**
- **workers have only very limited possibilities for protecting themselves against pesticides,**
- **people interviewed by PAN either had no access to personal protective equipment or could not afford it,**
- **none of the interviewees used protective clothing that met current standards in industrial countries.**

Moreover, the study shows that people and the environment in industrial countries are also not protected from the impacts of the use of highly hazardous pesticides. Both acute poisonings and long-term damage are possible.

Today inappropriate handling and use of pesticides remains widespread, despite the fact that a variety of diverse personnel-intensive and costly initiatives have been undertaken by governments, private enterprise, and civil society to avoid pesticide poisonings (see PAN Germany 2011).

Three sets of measures have generally been implemented to date to prevent pesticide poisonings: 1. governmental authorisation of pesticides, 2. the introduction of international, national, or regional pesticide laws, codes of conduct, and standards, and 3. training for pesticide users and for those who handle pesticides.

These three sets of measures have failed to achieve the intended effects. The main reasons for these shortcomings are the fact that governmental procedures for the authorisation of pesticides do not pay sufficient attention to the circumstances under which pesticides are used, laws and standards have been enacted but enforcement and monitoring have been inadequate, and people who have been trained do not or cannot apply what they have learned appropriately.

Since many measures implemented in roughly the last thirty years to realize the so-called “safe use” of highly hazardous pesticides have failed, in 2006 the Council of the United Nations Food and Agriculture Organisation (FAO) recommended that these pesticides be progressively banned (FAO 2006).

In calling for a progressive ban of highly hazardous pesticides, the FAO went beyond the provisions of article 5.2.4 of the International Code of Conduct on the Distribution and Use of Pesticides first adopted in 1985. The Code stipulates that the pesticide industry should

What are highly hazardous pesticides?

Pesticides – also called plant protection products – are substances that are used intentionally to influence, damage, or kill undesired organisms in order to protect agricultural products, to facilitate work processes, or for aesthetic reasons.

Among the highly hazardous pesticides are substances that have highly toxic acute effects, have long-term effects, or are very toxic for the environment. PAN has defined the following four groups:

Group 1 **Acute toxicity**

Extremely or highly hazardous according to the classification of the World Health Organisation (Class 1a or 1b) or very toxic when inhaled.

Group 2 **Long-term effects**

Possibly or probably carcinogenic or mutagenic, toxic for reproduction or endocrine-disruptive.

Group 3 **Environmental toxicity**

Persistent (that is, are degraded very slowly), accumulate in the food chain, or are very toxic for bees.

Group 4 **Conventions**

Have been included in the Montreal Protocol and/or the Rotterdam Convention and/or the Stockholm Convention, three international treaties. The Montreal Protocol regulates the use of ozone-depleting chemicals. The Rotterdam Convention regulates the exchange of information in international trade in pesticides. The Stockholm Convention aims to eliminate persistent organic pollutants worldwide.

The PAN International list of highly hazardous pesticides is available for downloading at www.pan-germany.org/gbr/project_work_hazardous_pesticides.html

Why highly hazardous pesticide active ingredients?

This study focuses on the marketing of highly hazardous pesticide active ingredients, rather than on sales of highly hazardous pesticide products. This focus has been chosen for the following reasons:

A specific pesticide active ingredient can be found in different pesticide products in varying quantities. If a commercial product contains only small amounts of a highly hazardous active ingredient, then the product may be less dangerous than if larger quantities of the active ingredient were included. Nonetheless, publications about acute and chronic poisoning show that highly hazardous pesticide active ingredients, when compared with other types of active ingredients, frequently cause poisonings, even though they are sold as components of different products with varying portions of the active substances. Examples are the active ingredients endosulfan and paraquat. That is why PAN calls for phasing out the use of all highly hazardous pesticides.

In some cases, the quantities in commercial products do not agree with the amounts approved or declared on the product labels; the quantity of active ingredients can be lower or higher. Sometimes a different active ingredient can be found in the product than the one declared on the label.

Relying on information about the amount of an active ingredient in a specific product is problematic in all those cases in which there is no threshold level for adverse effects or the threshold level is unknown or disputed.

Experience shows that a number of active ingredients are used not only as agricultural pesticides but also in other settings, for example to combat insects in homes. In these cases it is impossible to predict the amount of an active ingredient (or group of active ingredients that have similar effects) to which people, other organisms, or an ecosystem will be exposed.

Policymakers have addressed the issues raised by the high hazards associated with certain pesticide active ingredients since establishing official procedures for testing and authorising pesticides. Products that are on the market have all been authorised; in some cases, the use of products has later been restricted or banned. But ever since these procedures have been in place, some active ingredients have been subject to a complete ban. Examples are the active ingredient DDT, which in Germany was banned with a special law passed in 1972, or atrazine, an active ingredient that was banned for a variety of reasons, in particular because it was repeatedly identified as a groundwater contaminant.

Recently, policies have been implemented that preclude, in principle, approval of active ingredients with specific properties (EU 2009), independent of the amounts used in commercial products and independent of the group of chemicals to which they belong. According to this policy, in principle all substances that have been shown to be carcinogenic, mutagenic, or toxic for reproduction will no longer be eligible for approval in future. This new European approval policy is based on the precautionary principle. PAN's opinion is that the precautionary principle must be applied much more consistently and that not just some but all highly hazardous properties of active ingredients must be taken into account, including, for example, endocrine disruption or bee toxicity.

Active ingredients – products

The word pesticide is used to refer to both active ingredients and pesticide products. Pesticide products often contain more than one active ingredient as well as inerts which are added for example, to ensure the pesticide's consistency (powder, granulate, liquid, etc.) or its adhesion to plants. Pesticide producers usually sell active ingredients in more than one product. For example, bromoxynil can be found in sixteen commercial herbicides sold in Germany. In many cases, the quantity of the active ingredient in each product varies.

Methods

General information on methods

In this study, the corporations examined are always named in alphabetical order to avoid the impression that any single company might be classified as better than the others. The intention was not to rank the three; to do so would have entailed assessment of their activities in the areas of advertising, marketing, advice, etc. on the national level for each country investigated. Despite the fact that available resources limited the scope of this investigation and the methods used, its results are a viable basis for demonstrating the general need for taking action to eliminate highly hazardous pesticides.

Determining whether and if so which “highly hazardous” pesticide active ingredients are sold by the global pesticide market leaders BASF, Bayer CropScience, and Syngenta requires an appropriate definition of the term “highly hazardous”. This, in turn, requires identification of suitable criteria. PAN employs criteria such as “high acute toxicity”, “possibly carcinogenic”, or “toxic to bees” that reflect internationally recognized classifications. PAN has compiled a list of such highly hazardous pesticides based on these criteria. The list can be downloaded at **www.pan-germany.org/gbr/project_work/highly_hazardous_pesticides.html**

The PAN list of highly hazardous pesticides is thus based on toxicological classifications made by recognized international organisations. It comprises 446 pesticide active ingredients (as of 2011; PAN will publish an updated list in 2012) and groups the pesticides as follows:

- | | |
|------------------|---|
| Group 1 ► | acute toxicity |
| Group 2 ► | long-term effects |
| Group 3 ► | environmental toxicity |
| Group 4 ► | conventions (these active ingredients have been included in the Montreal Protocol and/or Rotterdam Convention and/or Stockholm Convention) |

Table 2	Geographical distribution of the websites analysed
Global websitecom	BASF + Bayer + Syngenta
National website in Europe (Germany)de	BASF + Bayer + Syngenta
Africa	
Morocco	BASF + Bayer + Syngenta
South Africa	BASF + Bayer + Syngenta
Asia	
India	BASF + Bayer + Syngenta
Indonesia	BASF + Bayer Syngenta – not available
Pakistan	BASF + Bayer Syngenta – not available
Thailand	BASF + Bayer Syngenta – not available, website under construction
Latin America	
Argentina	BASF + Bayer + Syngenta
Brazil	BASF + Bayer + Syngenta

In order to identify the highly hazardous pesticide active ingredients that BASF, Bayer CropScience, and Syngenta offer for sale on their websites, the websites of these three corporations were analysed following an internet data search.

The selection of the corporate websites to be analysed followed these requirements.

- The “.com website” of each corporation was included in the analysis.
- The “.de website” of each was also included.
- National websites were analysed for the same selection of countries for each corporation.
- This included websites from at least one country each in Asia, Africa, and Latin America.
- Websites were available for each corporation in German, English, Spanish, or Portuguese.

This selection resulted in the website analysis summarized in Table 2. The largest number of national websites is from Asian countries. There are only a few websites online for African countries. For Latin America, the investigation focused on large national pesticide markets.

The only website that directly lists the active ingredients available for purchase is www.bayercropscience.com. In all other cases we ascertained the active ingredients found in the pesticide formulations sold by the corporations in question by analysing the website information on each pesticide product (formulation) to determine what active ingredients they contain.

In order to identify the “highly hazardous” pesticide active ingredients, pesticide active ingredients found on the websites were compared with the *PAN International List of Highly Hazardous Pesticides* (version January 2011).

Methods for the investigation of BASF

BASF

Analysis of the BASF websites was conducted between 18 July 2011 and 5 August 2011 and included the German language website of BASF with headquarters in Germany (www.agrar.basf.de) as well as the BASF websites in the countries selected in Africa, Asia, and Latin America that are linked to the English language website of BASF Crop Protection Global (www.agro.basf.com).

The following ten BASF websites were analysed:

1. **BASF Crop Protection Global:** www.agro.basf.com/agr/AP-Internet/en/content/solutions/index
2. **Germany:** www.agrar.basf.de/de/common/tiles/static.jsp?page=produkte/_/Produkte.html&pagelId=24237
3. **Argentina:** www.agro.basf.com.ar/Soluciones.aspx
4. **Brazil:** www.agro.basf.com.br/agr/ms/apbrazil/pt_BR/content/APBrazil/solutions/index
5. **Morocco:** www.basf.com/group/corporate/de/about-basf/worldwide/africa/morocco
6. **South Africa:** www.basf.co.za/ecp1/Solutions_South_Africa/Solutions_Overview
7. **India:** www.asiapacific.basf.com/apex/AP/AsiaPacific/en/content/AP_Regional/1.1.2_Locations_Asia_Pacific/India/Products_and_Markets
8. **Indonesia:** www.asiapacific.basf.com/apex/AP/AsiaPacific/en/content/AP_Regional/1.1_About_Us/1.1.2_Locations_Asia_Pacific/Indonesia/Products_and_Markets
9. **Pakistan:** www.asiapacific.basf.com/apex/AP/AsiaPacific/en/content/AP_Regional/1.1_About_Us/1.1.2_Locations_Asia_Pacific/Pakistan/Products_and_Markets
10. **Thailand:** www.asiapacific.basf.com/apex/AP/AsiaPacific/en/content/AP_Regional/1.1_About_Us/1.1.2_Locations_Asia_Pacific/Thailand/Products_and_Markets

For Morocco there is no independent national BASF website for pesticides or crop protection. The BASF Morocco website redirects users to the pesticide products (formulations) described on the BASF corporate websites www.basf.com and www.agro.basf.com.

In South Africa, the BASF website only offers pesticide products for specific product segments. These are products from BASF’s segment “Pest Control Solutions” (insecticides, rodenticides, termiticides). For information on other pesticide products the BASF South Africa website refers users to products found on the BASF corporate websites www.basf.com and www.agro.basf.com.

The BASF India website states that the Agricultural Solutions Business of BASF India includes insecticides, herbicides, and fungicides, but no specific pesticide products are referred to. Here no reference is made to the global BASF website, as was the case on the BASF Morocco website. BASF Indonesia refers to the pesticide products of BASF Crop Protection Global. On the BASF Pakistan website, pesticides are mentioned within the product portfolio under chemicals but are not listed in greater detail. BASF Pakistan also does not refer on its website to the pesticide products of BASF Crop Protection Global. BASF Thailand offers clearly named pesticide products on its national website.

..... Bayer **Methods for the investigation of Bayer CropScience**

Analysis was conducted in the period between 10 June 2011 and 8 July 2011 and included the two German language websites of Bayer CropScience with headquarters in Germany (www.bayercropscience.com and www.bayercropscience.de) as well as Bayer websites in the countries selected in Africa, Asia, and Latin America that are linked to the English language website www.bayercropscience.com.

The following ten Bayer websites were analysed:

1. **Bayer CropScience Global (.com):** www.bayercropscience.com/bcsweb/cropprotection.nsf/id/DE_CropProtection
2. **Germany (.de):** www.bayercropscience.de/produktuebersicht.cms?ActiveID=1051
3. **Argentina:** www.bayercropscience.com.ar/
4. **Brazil:** www.bayercropscience.com.br/site/nossosprodutos.fss
5. **Morocco:** www.bayercropscience.ma/bcsweb/bcs_ma_internet.nsf/id/FR_Product_Overview
6. **South Afrika:** www.bayercropscience.co.za/Products/Products.aspx
7. **India:** www.bayergroupindia.com/crop_protec.html
8. **Indonesia:** www.bayer.co.id/eng/cs_cp_product_main.php
9. **Pakistan:** www.bayercropscience.com.pk/BCSWeb/www/BCS_PK_Internet.nsf/id//EN_Products_Overview?open
10. **Thailand:** www.bayer.co.th/webphp/eng/protection.php

..... Syngenta **Methods for the investigation of Syngenta**

Analysis was conducted in the period between 30 August 2011 and 14 October 2011 and included the German language website of Syngenta Global as well as Syngenta websites in Germany and in the countries selected in Africa, Asia, and Latin America.

The following seven Syngenta websites were analysed:

1. **Syngenta Global:** www.syngenta.com/global/corporate/de/Seiten/home.aspx
2. **Germany:** www.syngenta-agro.de/
3. **Argentina:** www.syngenta.com.ar/
4. **Brazil:** www.syngenta.com/country/br/pt/Pages/home.aspx
5. **Morocco:** www.syngenta.ma/index3.asp
6. **South Afrika:** www.syngenta.co.za/
7. **India:** www.syngenta.co.in/

Whereas ten websites were analysed for BASF and Bayer, only seven Syngenta websites were investigated, because there are no national websites for Indonesia and Pakistan and the website for Thailand was still incomplete. Thus, analysis of the corporate websites in Asia included three more websites for BASF and Bayer Crop-Science than for Syngenta.

Investigation results

Results of the investigation of BASF

BASF

PAN Germany's investigation shows that of the pesticide active ingredients on sale on the ten websites studied, fifty-five are listed on the PAN International list of highly hazardous pesticides (see annex). Thus, the pesticides offered by BASF represent considerable hazards.

For each of the three continents of the global South – in which pesticide application conditions are frequently especially problematic – PAN Germany's investigation identified on BASF websites

- five highly hazardous pesticide active ingredients in Africa,
- thirteen highly hazardous pesticide active ingredients in Asia, and
- twenty-six highly hazardous pesticide active ingredients in Latin America that are not available on BASF's German website.

Comparison of the pesticide active ingredients on sale on the BASF Crop Protection website in Germany with those on BASF websites in Africa, Asia, and Latin America show that ► eleven active ingredients on the market in Africa, Asia, or Latin America are not available on the German website. These active ingredients are listed in Table 3; nine of these eleven highly hazardous ingredients are not approved for sale in Germany.

Analysis of the toxicological profiles of the fifty-five highly hazardous pesticides on sale on the ten BASF websites shows:

Eight active ingredients are highly hazardous with respect to their acute toxicity (group 1: acute toxicity).

Thirty-five active ingredients are highly hazardous with respect to their long-term effects (group 2: long-term effects).

Twenty-nine active ingredients are highly hazardous with respect to their environmental toxicity (group 3: environmental toxicity).

None of the active ingredients are included in an international convention (group 4: Montreal Protocol and/or Rotterdam Convention and/or Stockholm Convention).

It should be noted that the sum of these four categories amounts to more than fifty-five active ingredients because some substances appear in more than one group (for example, high acute toxicity and at the same time environmental toxicity).

Table 3 **Active ingredients sold by BASF Crop Protection in Africa, Asia, and Latin America only (not on sale in Germany) and their approval status in Germany**

No	active ingredient	CAS-No	Registered in Germany ¹
1	carbendazim (fung)	10605-21-7	yes
2	chlorothalonil (fung)	1897-45-6	yes
3	fenbutatin-oxide (acar)	13356-08-6	no
4	hydramethylnon (ins)	67485-29-4	no
5	imazaquin (herb)	81335-37-7	no
6	imazethapyr (herb)	81335-77-5	no
7	permethrin (ins)	52645-53-1	no
8	profoxydim (herb)	139001-49-3	no
9	pyridaben (acar/ins)	96489-71-3	no
10	temephos (ins)	3383-96-8	no
11	terbufos (ins)	13071-79-9	no

1. Status of approval according to the German government's list of approved crop protection products (Verzeichnis zugelassener Pflanzenschutzmittel) dated 3 August 2011, accessed at portal.bvl.bund.de/psm/jsp/, website of the Bundesamt für Verbraucherschutz und Lebensmittelsicherheit [Federal Office of Consumer Protection and Food Safety] on 23 August 2011

Legend: acar: acaricide, fung: fungicide, herb: herbicide, ins: insecticide

Of the fifty-five highly hazardous BASF pesticides identified, sixteen active ingredients appear in more than one group (see Table 4).

Table 4 BASF active ingredients that appear in three or two groups of the PAN list of highly hazardous pesticides

Pesticide active ingredient	Sold by BASF in	Number of countries ¹
In three groups		
lambda-cyhalothrin (ins)	Germany	1
In two groups		
bromoxynil (herb)	Germany	1
chlorfenapyr (ins)	Argentina, Brazil, Germany, Thailand	4
chlorothalonil (fung)	Brazil	1
difenacoum (rod)	Germany, South Africa	2
dimethoate (ins/acar)	Argentina, Germany	2
epoxiconazole (fung)	Argentina, Brazil, Germany, Thailand	4
etofenprox (ins)	Germany	1
fenbutatin-oxide (acar)	Thailand	1
flupyrifos (ins)	Brazil, Germany, South Africa, Thailand	4
hydramethylnon (ins)	Thailand	1
pendimethalin (herb)	Argentina, Brazil, Germany, Thailand	4
permethrin (ins)	Brazil	1
prochloraz (fung)	Germany	1
tetramethrin (ins)	Germany	1
topramezone (herb)	Argentina, Germany	2

1. Number of countries in which the active ingredient is offered on Bayer websites.
Legend: acar: acaricide, fung: fungicide, herb: herbicide, ins: insecticide, rod: rodenticide

Analysis of the geographical distribution of where BASF pesticides are marketed reveals that each highly hazardous BASF pesticide is marketed in a different number of countries (see Table 4). Note that the active ingredients chlorfenapyr, epoxiconazole, fipronil, and pendimethalin are substances that are all marketed in four countries.

The insecticide chlorfenapyr is suspected of being carcinogenic and is highly toxic for bees.

The fungicide epoxiconazole is presumably carcinogenic, is suspected of being endocrine-disruptive, and is highly persistent in water.

The insecticide fipronil is a suspected carcinogen and is highly toxic for bees.

The herbicide pendimethalin is a suspected carcinogen and accumulates in the food chain.

Among the pesticides named here and marketed by BASF are two active ingredients whose residues are considered to be especially problematic when they occur in food for infants and young children: fipronil and terbufos.

The EU has set especially strict maximum residue levels for fipronil in cereal-based foods and other processed foods for infants and young children (see Table 5). The active ingredient terbufos is even prohibited throughout the EU for use in the production of agricultural products intended for processed cereal-based foods and foods for babies and young children (see Table 5).

BASF sells fipronil in Brazil, South Africa, and Thailand and markets terbufos in Brazil. These are countries in which it is unfortunately likely that pesticides are sometimes used in cultivating crops for which they have not been approved and in which they may not always be applied appropriately.

Table 5 BASF pesticides that are especially hazardous for infants and young children

	Restrictions on use for food for infants and young children*	EU maximum residue levels for food for infants and young children*	BASF sells this pesticide in
fenprophethate (ins)	prohibited	0,004 mg/kg	Brazil, South Africa, Thailand
terbufos (ins)	prohibited		Brazil
* According to EU 2006			
Legend: ins: insecticide			

Results of the investigation of Bayer

Bayer

PAN Germany's investigation of ten Bayer CropScience websites shows that on these sites, sixty-four pesticide active ingredients are sold that are included in PAN International's list of highly hazardous pesticides. Thus, the pesticides offered by Bayer represent considerable hazards.

In countries of the global South, in which application conditions are frequently especially problematic, the PAN Germany investigation identified on Bayer websites:

- thirty-seven highly hazardous pesticide active ingredients in Africa,
- twenty-five highly hazardous pesticide active ingredients in Asia, and
- thirty-one highly hazardous pesticide active ingredients in Latin America.

Comparison of the pesticide active ingredients on sale on the German-language Bayer CropScience website in Germany with those on Bayer websites in Africa, Asia, and Latin America show that ► **fifteen active ingredients are available on the market in Africa, Asia, or Latin America that are not offered on the German website.** These active ingredients are listed in Table 6; eleven of these fifteen highly hazardous active ingredients are not approved for sale in Germany.

The herbicide active ingredient diuron was exported from Germany in 2010, at a time when it was no longer approved for sale in Germany. Diuron is highly problematic, since it is presumably carcinogenic, can have negative effects on the hormone system, and, if instructions for its use are not adhered to strictly, can be hazardous for users, aquatic organisms, and for non-cultivated vegetation.

Analysis of the toxicological profiles of the sixty-four highly hazardous pesticides sold on ten Bayer websites shows that they can be categorized as follows:

Twelve active ingredients are highly hazardous with respect to their acute toxicity (group 1: acute toxicity).

Forty-seven active ingredients are highly hazardous with respect to their long-term effects (group 2: long-term effects).

Twenty-eight active ingredients are highly hazardous with respect to their environmental toxicity (group 3: environmental toxicity).

Three active ingredients were included in an international convention (group 4: Montreal Protocol and/or Rotterdam Convention and/or Stockholm Convention).

The sums for these four categories amounts to more than sixty-four because some active ingredients meet the criteria of more than one group (for example, high acute toxicity and at the same time environmental toxicity).

Of the sixty-four highly hazardous Bayer active ingredients identified, twenty-two active ingredients appear in more than one group (see Table 7).

As can be seen in Table 7, the active ingredients carbofuran, aldicarb, and methamidophos appear in more than two groups and are therefore particularly problematic.

Table 6 **Active ingredients sold by Bayer CropScience only in Africa, Asia, and Latin America (not on sale in Germany) and their approval status in Germany**

active ingredient	CAS-No	Registered in Germany ¹	Domestic sales/export according to BVL/Germany 2011
2,4-D (herb)	94-75-7	yes	domestic + export
bendiocarb (ins)	22781-23-3	no	
buprofezin (ins)	69327-76-0	no	
carbofuran (ilns/nem)	1563-66-2	no	
coumatetralyl (rod)	5836-29-3	no	
diuron (herb)	330-54-1	no	export
endosulfan (ins)	115-29-7	no	
ethoprophos (nem/ins)	13194-48-4	no	
fipronil (acar/ins)	120068-37-3	no	domestic + export
hydramethylnon (ins)	67485-29-4	no	
lactofen (herb)	77501-63-4	no	
mancozeb (fung)	8018-01-7	yes	domestic + export
Propargite (acar)	2312-35-8	no	
spinosad (ins)	168316-95-8	yes	domestic + export
thiophanate-methyl (fung)	23564-05-8	yes	domestic + export

Status of approval according to the German government's list of registered crop protection products (Verzeichnis zugelassener Pflanzenschutzmittel) dated 5 July 2011, accessed at <https://portal.bvl.bund.de/psm/jsp/>, website of the Bundesamt für Verbraucherschutz und Lebensmittelsicherheit [Federal Office of Consumer Protection and Food Safety] on 14 July 2011

2. Domestic sales and/or export according to BVL 2011

Legend: acar: acaricide, fung: fungicide, herb: herbicide, ins: insecticide, nem: nematocide, rod: rodenticide

Table 7 Bayer active ingredients that appear in two or three groups of the PAN list of highly hazardous pesticides

Pesticide active ingredients	Sold by Bayer in	Number of countries ¹
In four groups		
carbofuran (ins)	Indonesia, South Africa	2
In three groups		
aldicarb (ins/nem)	Argentina, Germany ² , South Africa	3
methamidophos (ins)	Germany (offered for sale on the website although it is not approved)	1
In two groups		
beta-cyfluthrin/ cyfluthrin (ins)	Argentina, Brazil, Germany, Indonesia, South Africa	5
bromoxynil (herb)	Germany, Pakistan, South Africa	3
carbaryl (ins)	Germany (offered for sale although it is not approved) India, Indonesia, South Africa, Thailand	5
ciproconazole (fung)	Germany, Morocco	2
deltamethrin (ins)	Argentina, Brazil, Germany, India, Indonesia, Morocco, Pakistan, South Africa, Thailand	9
difenoconazole (fung)	Germany	1
difethialone (rod)	Brazil, Germany	2
endosulfan (ins)	India	1
ethoprophos (nem/ins) ³	Morocco	1
fipronil (akar/ins)	Argentina, India, Pakistan	3
hydramethylnon (ins)	Brazil	1
iprovalicarb (fung)	Argentina, Germany, Indonesia, Pakistan, South Africa, Thailand	6
methiocarb (ins/moll/rep)	Germany, Indonesia, South Africa	3
prochloraz (fung)	Argentina, Brazil, Germany, South Africa, Thailand	5
propargit (akar)	Morocco	1
pyrasulfotol (herb)	Germany (offered for sale although it is not approved)	1
tebuconazol (fung)	Argentina, Brazil, Germany, India, Indonesia, Morocco, Pakistan, South Africa, Thailand	9
thiodicarb (ins)	Argentina, Brazil, Germany (offered for sale although it is not approved), India, Indonesia, South Africa	6
thiram (fung)	Brazil	1

1. Number of countries in which the active ingredients are offered on Bayer websites.

2. According to communication between PAN Germany and the Bayer CropScience headquarters in Germany 2011, Bayer removed aldicarb from its German-language website in 2011. Aldicarb was still offered on Bayer's ".com website" in February 2012.

3. After this investigation was completed, it became known that Bayer had divested ethoprophos (Mocap) and fenamiphos (Nemacur).

Legend: acar: acaricide, fung: fungicide, herb: herbicide, ins: insecticide, moll: molluscicide, nem: nematocide, rep: repellent, rod: rodenticide

The insecticide active ingredient carbofuran has a high acute toxicity, is very toxic if inhaled, has the potential to damage the hormone system, is an environmental toxin (harmful to bees) and was included in the Rotterdam Convention, which established standards for international trade in hazardous chemicals. Bayer offers this highly hazardous pesticide in Indonesia and South Africa, countries in which pesticides are often used inappropriately.

The active ingredient aldicarb is an insecticide and acaricide. It has a high acute toxicity, is highly toxic when inhaled, has the potential to harm the hormone system, is highly toxic for bees, and, because of its high toxicity, was included in the Rotterdam Convention in 2011. In 2011 Bayer informed PAN Germany in writing that Bayer had ended the production of aldicarb (Temik) in 2010 and would terminate further marketing of this active ingredient by 2012 at the latest. However, Bayer admitted that products with aldicarb are still registered in many countries and it would take some time until the remaining stocks were used up. Responding to a letter from PAN in 2011, Bayer predicted that all of the stocks would probably be sold in the course of 2011. When asked by PAN, Bayer declared that it would take back aldicarb-containing products if any customers wanted to dispose of their stocks.

The fact that in June/July 2011 Bayer offered aldicarb for sale in four countries suggests that its decision to end production of aldicarb was not so much motivated by the desire to avoid poisonings as by the fact that Bayer was under considerable pressure to phase it out.

The active ingredient methamidophos is an insecticide and acaricide. It has highly acute toxic properties, has a high inhalative toxicity, is highly toxic for bees, and was included in the Rotterdam Convention because of its hazardous properties. Evidence shows that pesticides that contain methamidophos are sold on the street in South Africa, in some cases even by children (Rother 2010).

..... Syngenta **Results of the investigation of Syngenta**

The PAN Germany investigation shows that of the pesticide active ingredients offered on the seven Syngenta websites analysed, fifty-six appear on the PAN International list of highly hazardous pesticides (see annex).

Thus, the pesticides offered by BASF also represent considerable hazards.

Itemised by continent, the investigation has identified on the respective Syngenta websites

- thirty-five highly hazardous pesticide active ingredients in Africa,
- eleven highly hazardous pesticide active ingredients in Asia, and
- thirty-nine highly hazardous pesticide active ingredients in Latin America.

Table 9 Active ingredients sold by Syngenta in Africa, Asia, and Latin America only that are not offered on Syngenta's German-language main website in Switzerland and their approval status in Switzerland

No	active ingredient	CAS-No	Approved in Switzerland ¹
1	2,4-D (herb)	94-75-7	yes
2	aluminium phosphide (ins/rod)	20859-73-8	yes
3	atrazine (herb)	1912-24-9	no
4	Boric acid (fung/ins)	10043-35-3	no
5	brodifacoum (rod)	56073-10-0	yes
6	carbendazim (fung)	10605-21-7	yes
7	chlorthalonil (fung)	1897-45-6	yes
8	chlorphropham (herb)	101-21-3	yes
9	cypermethrin (ins)	65731-84-2	yes
10	cyromazine (ins)	66215-27-8	yes
11	diafenthuron (ins/acar)	80060-09-9	yes
12	deiquat (herb)	85-00-7	yes
13	diuron (herb)	330-54-1	yes
14	fentin hydroxide (fung)	76-87-9	no
15	imazethapyr (herb)	81335-77-5	no
16	lufenuron (ins)	103055-07-8	yes
17	methidathion (ins)	950-37-8	yes
18	metsulfuron-methyl (herb)	74223-64-6	yes
19	paraquat dichloride (herb)	1910-42-5	no
20	profenofos (ins)	41198-08-7	no
21	prometryn (herb)	7287-19-6	no
22	simazine (herb)	122-34-9	no
23	thiabendazole (fung)	148-79-8	yes
24	tralkoxydim (herb)	87820-88-0	no

1. Status of approval according to the list of registered plant protection products (Verzeichnis zugelassener Pflanzenschutzmittel) dated 16 January 2012, accessed on the website of the Swiss Federal Agency for Agriculture (Schweizerisches Bundesamt für Landwirtschaft, BLW) at -www.blw.admin.ch/psm/wirkstoffe/index.html?lang=de on 30 January 2012

Legend: acar: acaricide, fung: fungicide, herb: herbicide, ins: insecticide, rod: rodenticide

Comparison of the pesticide active ingredients on sale on the German-language website of Syngenta's Swiss headquarters with those on Syngenta's websites in Africa, Asia, and Latin America show that ► twenty-four active ingredients that are on the market in Africa, Asia, or Latin America are not available on the German-language website.

These active ingredients are listed in Table 9; nine of these twenty-four highly hazardous active ingredients are not approved for sale in Switzerland, seat of the headquarters of Syngenta (see Table 9).

Analysis of the toxicological profiles of the fifty-six highly hazardous pesticides offered on the seven Syngenta websites shows:

Eight active ingredients are highly hazardous with respect to their acute toxicity (group 1: acute toxicity).

Thirty-two active ingredients are highly hazardous with respect to their long-term effects (group 2: long-term effects).

Thirty active ingredients are highly hazardous with respect to their environmental toxicity (group 3: environmental toxicity).

None of the active ingredients are included in an international convention (Montreal Protocol and/or Rotterdam Convention and/or Stockholm Convention, group 4).

The sum amounts to more than fifty-six because some active ingredients appear in more than one group (for example, high acute toxicity and at the same time environmental toxicity).

Of the fifty-six highly hazardous Syngenta pesticides identified, twelve active ingredients appear in more than one group, and two active ingredients, lambda-cyhalothrin and methidation, are found in more than two groups (see Table 10).

Lambda-cyhalothrin is highly toxic when inhaled, highly toxic for bees, and suspected of influencing the hormone system. **Methidation** has been classified by the World Health Organisation as highly hazardous, is suspected of being carcinogenic, and is also toxic for bees.

Analysis of the geographical distribution of the marketing of Syngenta pesticides shows that each individual highly hazardous Syngenta pesticide offered in a different number of countries. Of the pesticides on PAN's list of highly hazardous pesticides that appear in two or three groups, **lambda-cyhalothrin**, **difenoconazole**, and **propiconazole** are especially conspicuous because Syngenta sells these active ingredients in six countries, the largest number of countries identified; these three active ingredients are followed by chlorothalonil and cyproconazole (sold in five countries).

Lambda-cyhalothrin is extremely toxic when inhaled, can damage the hormone system, and is highly toxic for bees. **Difenoconazole** is probably carcinogenic and is highly persistent in aquatic sediments. **Propiconazole** is suspected of being carcinogenic and is very persistent in aquatic sediments. **Chlorothalonil** is very toxic when inhaled and probably carcinogenic. **Cyproconazole** is possibly carcinogenic and highly persistent in water and in aquatic sediments.

Tabelle 10 **Syngenta active ingredients that appear in two or three groups of the PAN list of highly hazardous pesticides¹**

Pesticide active ingredients	Sold by Syngenta in	Number of countries ¹
In three groups		
lambda-cyhalothrin (ins)	Argentina, Brazil, Germany, India, Morocco, South Africa	6
methidathion (ins)	Brazil, Morocco	2
In two groups		
chlorthalonil (fung)	Argentina, Brazil, Germany, India, Morocco, South Africa	6
cyproconazole (fung)	Argentina, Brazil, Germany, India, Morocco, South Africa	5
difenoconazole (fung)	Argentina, Brazil, Germany, India, Morocco, South Africa	6
fenoxycarb (ins)	Germany, South Africa	2
fentin hydroxide (fung)	Brazil	1
pirimicarb (ins)	Argentina, Germany, Morocco, South Africa	4
propiconazole (fung)	Argentina, Brazil, Germany, India, Morocco, South Africa	6
tebuconazole (fung)	Germany	1
tefluthrin (ins)	Argentina, Germany	2
tralkoxydim (herb)	Morocco, South Africa	2

1. Number of countries in which the active ingredients are available on Syngenta websites
Legend: fung: fungicide, herb: herbicide, ins: insecticide

Summary and demands

Highly hazardous pesticides cause a considerable number of poisoning incidents – especially in developing countries. In the course of the last quarter of a century, governments, aid organisations, and the pesticide industry have undertaken diverse and extensive initiatives to avoid pesticide poisoning (see PAN Germany 2011). These initiatives have been shown to be ineffective in reducing the global scale of pesticide poisonings (see PAN International 2011). That is why experts have recently recommended that highly hazardous pesticides should be abolished, step-by-step (see FAO 2006).

In order to ascertain whether the three largest pesticide-producing corporations worldwide, which control nearly half of the global pesticide market, market highly hazardous pesticides to an appreciable extent, PAN Germany collected and assessed data from internet websites.

Analysis of ten BASF-websites, ten Bayer websites, and seven Syngenta websites revealed that

- ▶ BASF offers fifty-five highly hazardous pesticide active ingredients for sale,
 - ▶ Bayer offers sixty-four highly hazardous pesticide active ingredients, and
 - ▶ Syngenta offers fifty-six highly hazardous pesticide active ingredients
- that are listed on PAN International's list of highly hazardous pesticides.

Thus, the pesticides offered by BASF, Bayer, and Syngenta represent considerable hazards.

Each of these active ingredients has specific hazardous properties. These include adverse effects on reproduction, congenital defects such as low birth weight or malformations, impairment of children's cognitive development, increased incidence of cancer, or high acute toxicity.

BASF, Bayer, and Syngenta should therefore start undertaking concrete steps that follow a detailed time plan to terminate sales of all highly hazardous pesticides.

This should be implemented immediately, especially in developing countries, in which the conditions for use are frequently highly risky and can easily lead to pesticide poisoning of humans and the environment.

Of the three world market leaders BASF, Bayer, and Syngenta, so far only one has announced concrete plans to discontinue marketing certain highly hazardous pesticides. Bayer CropScience has declared that it intends to terminate sales of all highly hazardous insecticides by the end of 2012. This is an important step, even if, as reported by the German newspaper *Handelsblatt* (Anonymus, 2011), the reason for this decision is in fact the negligible share that this division contributes to total corporate turnover. How many highly hazardous insecticide active ingredients Bayer CropScience will indeed remove from the market will remain to be seen at the end of 2012. BASF and Syngenta have not made similar announcements to date.

Show BASF, Bayer and Syngenta the red card!

Call on these corporations to stop marketing highly hazardous pesticides.
Tell them that highly hazardous pesticides are not compatible with a sustainable future. Demand that they implement clear-cut measures that follow a detailed time plan to terminate, step-by-step, the marketing of highly hazardous pesticides.

**STOP HAZARDOUS
PESTICIDES!**

Show BASF, Bayer and
Syngenta the red card!

Take part in our online-campaign:
<http://action.pan-germany.org/gbr.html>

By visiting the website, you can show these corporations the red card and call on them to phase out highly hazardous pesticides.

Annex

Toxicity and international regulation of BASF, Bayer and Syngenta pesticides (active ingredients)

.....BASF **BASF pesticide active ingredients listed on the PAN international List of Highly Hazardous Pesticides (version January 2011)**

			Group 1: Acute Toxicity					Group 2: Long term effects										Group 3: Environmental toxicity					Group 4: Conventions											
No.	CAS number	Pesticide	sum of max=1 in Groups 1-4	WHO Ia	WHO Ib	R26	MAX = 1	EPA prob likel carc	IARC carc	EU canc (1,2)	EU GHS (1A, 1B)	EPA prob likel carc	IARC prob carc	EPA poss carc	IARC poss carc	EU canc (3)	EU GHS (2)	EU muta (1,2)	EU GHS muta (1A, 1B)	EU repro (1,2)	EU GHS repro (1A, 1B)	EU EDC (1,2) or C2 & R2 GHS	max = 1	very bio acc	very pers water	very pers water sedi	highly toxic bees	max = 1	Mont Prot	PLC	POP	max = 1		
				4	0	5	8	0	0	0	0	10	3	18	0	8	8	1	1	2	2	13	35	4	9	7	13	29	0	0	0	0		
1	71751-41-2	Abamectin	1				0															0						1	1			0		
2	25057-89-0	Bentazone	1				0															0			1	1			1			0		
3	188425-85-6	Boscalid	1				0							1								1				1						0		
4	56073-10-0	Brodifacoum	1	1			1															0										0		
5	1689-84-5	Bromoxynil	2			1	1							1								1	1									0		
6	10605-21-7	Carbendazim	1				0							1				1	1	1	1	1	1									0		
7	122453-73-0	Chlorfenapyr	2				0							1								1						1	1				0	
8	1898-45-6	Chlorothalonil	2			1	1					1	1				1	1				1											0	
9	1702-17-6	Clopyralid	1				0															0			1								0	
10	67375-30-8	Cypermethrin, alpha	1				0															0						1	1				0	
11	15165-67-0	Dichlorprop-P	1				0						1									1											0	
12	56073-07-5	Difenacoum	2	1			1															0		1					1				0	
13	87674-68-8	Dimethenamid	1				0							1								1											0	
14	60-51-5	Dimethoate	2				0							1								1	1						1	1			0	
15	149961-52-4	Dimoxystrobin	1				0										1	1				1	1										0	
16	3347-22-6	Dithianon	1				0							1								1											0	
17	133855-98-8	Epoxiconazole	2				0					1					1	1				1	1		1								0	
18	66230-04-4	Esfenvalerate	1				0															0							1	1			0	
19	80844-07-1	Etofenprox	2				0							1								1								1	1			0
20	13356-08-6	Fenbutatin-oxide	2			1	1															0					1			1			0	
21	120068-37-3	Fipronil	2				0							1								1							1	1			0	
22	90035-08-8	Flocoumafen	1	1		1	1															0											0	
23	101463-69-8	Flufenoxuron	1				0															0		1						1			0	
24	133-07-3	Folpet	1				0						1									1											0	
25	78587-05-0	Hexythiazox	1				0															1											0	
26	67485-29-4	Hydramethylnon	2				0							1								1		1						1			0	
27	81335-37-7	Imazaquin	1				0															0				1	1						0	
28	81335-77-5	Imazethapyr	1				0															0							1	1			0	
29	36734-19-7	Iprodione	1				0						1				1	1				1	1										0	
30	143390-89-0	Kresoxim-methyl	1				0						1				1	1				1											0	
31	91465-08-6	Lambda-cyhalothrin	3			1	1															1	1							1	1			0
32	8018-01-7	Mancozeb	1				0						1									1	1											0
33	94-74-6	MCPA	1				0							1								1											0	
34	67129-08-2	Metazachlor	1				0															0			1								0	
35	125116-23-6	Metconazole	1				0															0						1					0	
36	9006-42-2	Metiram	1				0															1	1										0	
37	220899-03-6	Metrafenone	1				0							1								1											0	
38	111991-09-4	Nicosulfuron	1				0															0				1							0	
39	40487-42-1	Pendimethalin	2				0							1								1		1									0	
40	219714-96-2	Penoxsulam	1				0							1								1											0	
41	52645-53-1	Permethrin	2				0						1									1	1							1	1			0
42	67747-09-5	Prochloraz	2				0						1									1	1			1	1						0	
43	139001-49-3	Profoxydim	1				0										1	1				1	1										0	
44	96489-71-3	Pyridaben	1				0															0								1	1			0
45	53112-28-0	Pyrimethanil	1				0						1									1											0	
46	90717-03-6	Quinmerac	1				0															0			1								0	
47	119168-77-3	Tebufenpyrad	1				0							1								1											0	
48	3383-96-8	Temephos	1				0															0							1	1			0	
49	149979-41-9	Tepraloxymid	1				0										1	1				1	1										0	
50	13071-79-9	Terbufos	1	1			1															0											0	
51	7696-12-0	Tetramethrin	2				0							1								1											0	
52	23564-05-8	Thiophanate-methyl	1				0						1									1											0	
53	210631-68-8	Topramezone	2				0						1									1					1						0	
54	81412-43-3	Tridemorph	1				0												1	1		1											0	
55	131983-72-7	Triticonazole	1				0															0			1	1							0	

Bayer pesticide active ingredients listed on the PAN international List of Highly Hazardous Pesticides (version January 2011)

Bayer

				Group 1: Acute Toxicity				Group 2: Long term effects														Group 3: Environmental toxicity					Group 4: Conventions					
No.	CAS number	Pesticide	sum of max=1 in Groups 1-4	WHO Ia	WHO Ib	R26	MAX = 1	EPA carc	IARC carc	EU carc (1,2)	EU GHS (1A, 1B)	EPA prob likel carc	IARC prob carc	EPA poss carc	IARC poss carc	EU carc (3)	EU GHS (2)	EU muta (1,2)	EU GHS muta (1A, 1B)	EU repro (1,2)	EU GHS repro (1A, 1B)	EU EDC (1,2) or C2 & R2 GHS	max = 1	very bio acc	very pers water	very pers water sedi	highly toxic bees	max = 1	Month Prot	PLC	POP	max = 1
				4	6	7	12	0	0	0	0	15	1	21	0	7	7	1	1	3	3	18	47	3	6	9	14	28	0	3	0	3
1	94-75-7	2,4 D	1				0					1										1	1					0				0
2	116-06-3	Aldicarb	3	1		1	1															1	1				1	1				0
3	120923-37-7	Amidosulfuron	1				0															0			1		1					0
4	22781-23-3	Bendiocarb	1				0															0					1	1				0
5	68359-37-5	Beta-cyfluthrin; Cyfluthrin	2		1	1	1															0					1	1				0
6	1689-84-5	Bromoxynil	2			1	1							1								1	1					0				0
7	69327-76-0	Buprofezin	1				0							1									1					0				0
8	133-06-2	Captan	1				0							1		1	1					1						0				0
9	63-25-2	Carbaryl	2				0				1					1	1					1	1				1	1				0
10	10605-21-7	Carbendazim	1				0							1				1	1	1	1	1	1					0				0
11	1563-66-2	Carbofuran	4		1	1	1															1	1					1		1		1
12	210880-92-5	Clothianidin	1				0															0					1	1				0
13	5836-29-3	Coumatetralyl	1		1		1															0						0				0
14	94361-06-5	Cyproconazole	2				0							1								1			1	1		1				0
15	52918-63-5	Deltamethrin	2				0															1	1				1	1				0
16	51338-27-3	Diclofop-methyl	1				0				1											1						0				0
17	119446-68-3	Difenoconazole	2				0							1								1				1		1				0
18	104653-34-1	Difethialone	2	1			1															0	1					1				0
19	298-04-4	Disulfoton	1	1			1															0						0				0
20	330-54-1	Diuron	1				0				1					1	1					1	1					0				0
21	115-29-7	Endosulfan	2			1	1															1	1					0				0
22	26225-79-6	Ethofumesate	1				0															0				1		1				0
23	13194-48-4	Ethoprophos	2	1		1	1				1											1						0				0
24	55-38-9	Fenthion	1				0															0						1	1			0
25	120068-37-3	Fipronil	2				0							1								1						1	1			0
26	131341-86-1	Fludioxonil	1				0															0				1		1				0
27	239110-15-7	Fluopicolide	1				0															0			1	1		1				0
28	133-07-3	Folpet	1				0				1						1	1				1						0				0
29	77182-82-2	Glufosinate-ammonium	1				0												1	1			1					0				0
30	67485-29-4	Hydramethylnon	2				0							1								1	1		1			1				0
31	35554-44-0	Imazalil	1				0				1											1						0				0
32	138261-41-3	Imidacloprid	1				0															0					1	1				0
33	1689-83-4	Ioxynil	1				0															1	1					0				0
34	36734-19-7	Iprodione	1				0				1					1	1					1	1					0				0
35	140923-17-7	Iprovalicarb	2				0				1												1				1		1			0
36	34123-59-6	Isoproturon	1				0									1	1					1					1		0			0
37	141112-29-0	Isoxaflutole	1				0				1												1					0				0
38	77501-63-4	Lactofen	1				0							1								1						0				0
39	2164-08-1	Lenacil	1				0															0			1			1				0
40	8018-01-7	Mancozeb	1				0				1											1	1					0				0
41	108-62-3	Metalddehyde	1				0							1								1						0				0
42	10265-92-6	Methamidophos	3		1	1	1															0					1	1		1		1
43	2032-65-7	Methiocarb	2		1		1															0					1	1				0
44	21087-64-9	Metribuzin	1				0															1	1					0				0
45	19666-30-9	Oxadiazon	1				0							1								1						0				0
46	67747-09-5	Prochloraz	2				0							1								1	1		1	1		1				0
47	2312-35-8	Propargite	2				0				1					1	1					1	1					1				0
48	365400-11-9	Pyrasulfotole	2				0							1									1			1	1		1			0
49	121-21-1	Pyrethrins	1				0							1								1	1					0				0
50	53112-28-0	Pyrimethanil	1				0							1								1						0				0
51	119738-06-6	Quizalofop-p-tefuryl	1				0												1	1			1					0				0
52	168316-95-8	Spinosad	1				0															0					1	1				0
53	148477-71-8	Spirodiclofen	1				0				1											1						0				0
54	107534-96-3	Tebuconazole	2				0							1								1				1		1				0
55	335104-84-2	Tembotrione	1				0							1								1						0				0
56	111988-49-9	Thiacloprid	1				0				1											1						0				0
57	59669-26-0	Thiodicarb	2				0				1											1					1	1				0
58	23564-05-8	Thiophanate-methyl	1				0				1											1						0				0
59	137-26-8	Thiram	2				0															1	1					0		1		1
60	43121-43-3	Triadimefon	1				0						</																			

..... Syngenta **Syngenta pesticide active ingredients listed on the PAN international List of Highly Hazardous Pesticides (version January 2011)**

			Group 1: Acute Toxicity				Group 2: Long term effects												Group 3: Environmental toxicity					Group 4: Conventions								
No.	CAS number	Pesticide	sum of max=1 in Groups 1-4	WHO Ia	WHO Ib	R26 MAX = 1	EPA carc	IARC carc	EU carc (1,2)	EU GHS (1A, 1B)	EPA prob likel carc	IARC prob carc	EPA poss carc	IARC poss carc	EU carc (3)	EU GHS (2)	EU muta (1,2)	EU GHS muta (1A, 1B)	EU repro (1,2)	EU GHS repro (1A, 1B)	EU EDC (1,2) or C2 & R2 GHS	max = 1	very bio acc	very pers water	very pers water sedi	highly toxic bees	max = 1	Mont Prot	PLC	POP	max = 1	
				1	2	5	8	0	0	0	0	9	3	13	0	7	7	1	1	3	3	12	32	1	7	13	14	30	0	0	0	0
1	94-75-7	2,4-D	1			0					1										1	1					0				0	
2	71751-41-2	Abamectin	1			0																0				1	1				0	
3	20859-73-8	Aluminium phosphide	1			0																0				1	1				0	
4	1912-24-9	Atrazine	1			0															1	1					0				0	
5	131860-33-8	Azoxystrobin	1			0															1	0			1		1				0	
6	10043-35-3	Boric acid	1			0													1	1	1	1					0				0	
7	56073-10-0	Brodifacoum	1	1		1																0					0				0	
8	10605-21-7	Carbendazim	1			0						1					1	1	1	1	1	1					0				0	
9	1897-45-6	Chlorothalonil	2			1	1			1	1					1	1					1					0				0	
10	101-21-3	Chlorpropham	1			0										1	1					1					0				0	
11	105512-06-9	Clodinafop-propargyl	1			0						1										1					0				0	
12	65731-84-2	Cypermethrin	1			0																0				1	1				0	
13	94361-06-5	Cyproconazole	2			0						1									1			1	1		1				0	
14	66215-27-8	Cyromazine	1			0																0				1		1			0	
15	80060-09-9	Diafenthiuron	1			0																0				1	1				0	
16	119446-68-3	Difenoconazole	2			0						1									1					1		1			0	
17	85-00-7	Diquat dibromide	1			1	1															0					0				0	
18	330-54-1	Diuron	1			0			1						1	1					1	1					0				0	
19	72490-01-8	Fenoxycarb	2			0			1												1	1				1	1				0	
20	67306-00-7	Fenpropidin	1			0					1											1					0				0	
21	76-87-9	Fentin Hydroxide	2			1	1			1					1	1					1	1					0				0	
22	69806-50-4	Fluazifop-butyl	1			0													1	1		1					0				0	
23	79622-59-6	Fluazinam	1			0						1										1					0				0	
24	131341-86-1	Fludioxonil	1			0																0				1		1			0	
25	133-07-3	Folpet	1			0				1						1	1					1					0				0	
26	98886-44-3	Fosfiazate	1			0																0					1	1			0	
27	35554-44-0	Imazalil	1			0				1												1					0				0	
28	81335-77-5	Imazethapyr	1			0																0				1	1				0	
29	91465-08-6	Lambda-cyhalothrin	3			1	1														1	1				1	1				0	
30	103055-07-8	Lufenuron	1			0																0	1	1			1				0	
31	8018-01-7	Mancozeb	1			0				1											1	1					0				0	
32	94-74-6	MCPA	1			0						1										1					0				0	
33	950-37-8	Methidathion	3		1		1						1									1				1	1				0	
34	21087-64-9	Metribuzin	1			0															1	1					0				0	
35	74223-64-6	Metsulfuron-methyl	1			0																0		1			1				0	
36	15299-99-7	Napropamide	1			0																0				1	1				0	
37	111991-09-4	Nicosulfuron	1			0																0		1			1				0	
38	76738-62-0	Paclobutrazol	1			0																0		1	1	1	1				0	
39	1910-42-5	Paraquat dichloride	1			1	1															0					0				0	
40	66246-88-6	Penconazole	1			0																0				1		1			0	
41	219714-96-2	Penoxsulam	1			0							1									1					0				0	
42	23103-98-2	Pirimicarb	2			0				1												1				1	1				0	
43	29232-93-7	Pirimiphos-methyl	1			0																0					1	1			0	
44	41198-08-7	Profenofos	1			0																0					1	1			0	
45	7287-19-6	Prometryn	1			0																1	1				0				0	
46	60207-90-1	Propiconazole	2			0							1									1				1	1				0	
47	52888-80-9	Prosulfocarb	1			0																0				1		1			0	
48	123312-89-0	Pymetrozine	1			0				1						1	1					1					0				0	
49	122-34-9	Simazine	1			0										1	1					1	1				0				0	
50	87392-12-9	S-Metolachlor	1			0							1									1					0				0	
51	107534-96-3	Tebuconazole	2			0							1									1			1		1				0	
52	79538-32-2	Tefluthrin	2		1	1																0				1	1				0	
53	148-79-8	Thiabendazole	1			0						1										1					0				0	
54	153719-23-4	Thiamethoxam	1			0																0					1	1			0	
55	87820-88-0	Tralkoxydim	2			0							1									1					1				0	
56	82097-50-5	Triasulfuron	1			0																0		1	1		1				0	

Explanatory notes

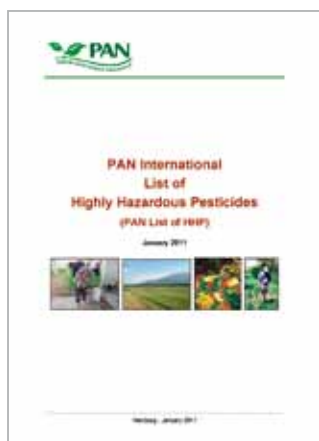
WHO 1a	Extremely hazardous (Class 1a) according to World Health Organisation
WHO 1b	Highly hazardous (Class 1b) according to World Health Organisation
R26	Very toxic by inhalation according to EU
EPA carc	Human carcinogen according to EPA
IARC carc	Human carcinogen according to IARC
EU carc (1,2)	Known to be carcinogenic to humans (category 1) or sufficient evidence to provide a strong presumption that human exposure to a substance may result in the development of cancer (category 2) according to EU
EU GHS (1A, 1B)	Known or presumed human carcinogens (1A or 1B) according to EU GHS Regulation 1272/2008/EC
EPA prob/likel carc	Probable/likely carcinogen according to EPA
IARC prob carc	Probable carcinogen according to IARC
EPA poss carc	Possible carcinogen according to EPA
IARC poss carc	Possible carcinogen according to IARC
EU carc (3)	Substances which cause concern for humans owing to possible carcinogenic effects (category 3) according to EU
EU GHS (2)	Suspected human carcinogen (category 2) according to EU GHS Regulation 1272/2008/EC
EU muta (1,2)	Substances known to be mutagenic to man (category 1) or substances which should be regarded as if they are mutagenic to man (category 2) according to EU
EU GHS muta (1A, 1B)	Substances known to induce heritable mutations or to be regarded as if they induce heritable mutations in the germ cells of humans. Substances known to induce heritable mutations in the germ cells of humans' (Category 1A or 1B) according to EU Regulation 1272/2008/EC
EU repro (1,2)	Substances known to be mutagenic to man (category 1) or substances which should be regarded as if they are mutagenic to man (category 2) according to EU
EU GHS repro (1A, 1B)	Substances known to impair fertility in humans (category 1) or substances which should be regarded as if they impair fertility in humans and/or substances which should be regarded as if they cause developmental toxicity to humans (category 2) according to EU
EU EDC (1,2) or C2 & R2 GHS	Endocrine disruptor or potential endocrine disruptor according to EU category 1 or category 2 or GHS cancer 2 AND EU reproductive toxicity 2
Very bio acc	Very bioaccumulative according to REACH criteria
Very pers water	Very persistent in water according to REACH criteria
Very pers water sedi	Very persistent in water/sediment according to REACH criteria
Highly toxic bees	Hazard to ecosystem services – Highly toxic for bees according to U.S. EPA as listed by FOOTPRINT data
Montr Prot	Ozone depleting according to the Montreal Protocol
PIC	Listed in Annex III of the Rotterdam Convention
POP	Listed in Annex III of the Stockholm Convention

For more information on the classification of pesticides see PAN International 2011.

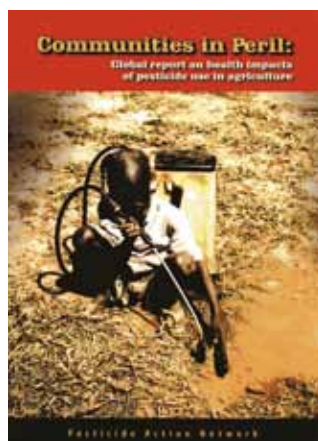
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PAN publications on “highly hazardous pesticides”



PAN International List of Highly Hazardous Pesticides PAN International 2011 This list shows which active ingredients are highly hazardous and what their properties are. It also explains the internationally recognized classifications PAN has used as a basis for the list.



Communities in Peril: Global report on the health impacts of pesticides used in agriculture PAN International 2010 The report documents that hazardous pesticides are commonly used in unsafe situations around the world, and calls for immediate, assertive action by corporations, governments, and international bodies to address pesticide hazards.



Stop Pesticide Poisonings! PAN Germany 2011 This brochure reviews three decades of international pesticide policy to show why a growing number of individuals and organisations no longer believe that training can achieve a so-called “safe use” of hazardous pesticides in developing countries and thus call for a progressive ban on highly hazardous pesticides.



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A healthy world for all. Protect humanity and the environment from pesticides. Promote alternatives.

