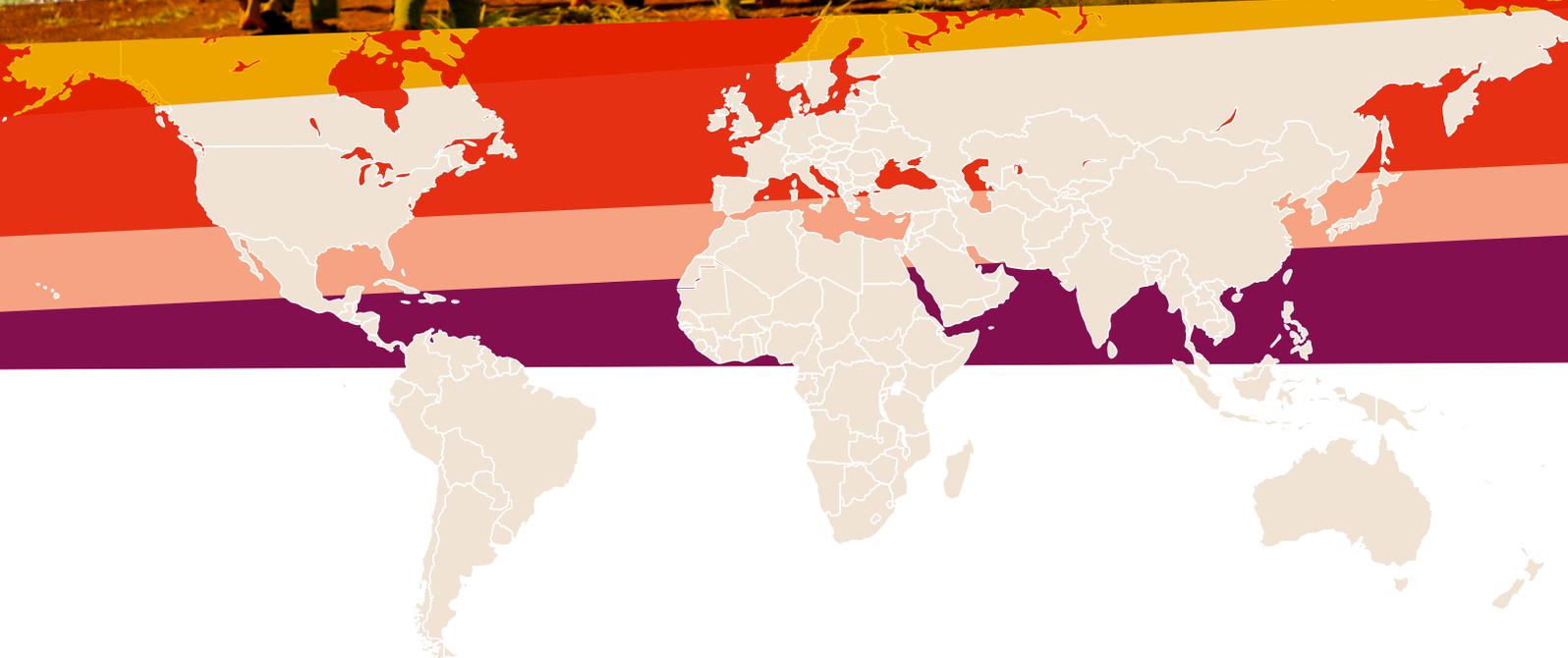


Hazardous Pesticides

from Bayer and BASF—a global trade with double standards





Bayer and BASF

in the global pesticide market

The world leading pesticide manufacturers are increasingly subject to criticism for products that are hazardous to health and the environment, with one difficult-to-pronounce active ingredient entering public discourse after another—such as, glyphosate, neonicotinoids, and chlorpyrifos. What has so far gone unnoticed, however, are the double standards that companies like Bayer and BASF use to market their pesticides globally. That is, German pesticide manufacturers produce a number of active ingredients that are not approved in the European Union (EU) and export them to countries in the Global South where the regulations governing pesticide approval are often weaker than in the EU. Research by the Pesticide Action Network (PAN)¹ has shown that 62 active ingredients in pesticides were exported from Germany in 2017 that are classified as highly hazardous (see Box 1)—more than a quarter of all exported active ingredients. Nine of these highly hazardous exports are not approved in the EU due to their noxious properties. Cases regarding the use of pesticides by Bayer and BASF in South Africa and Brazil are presented in this brochure and they

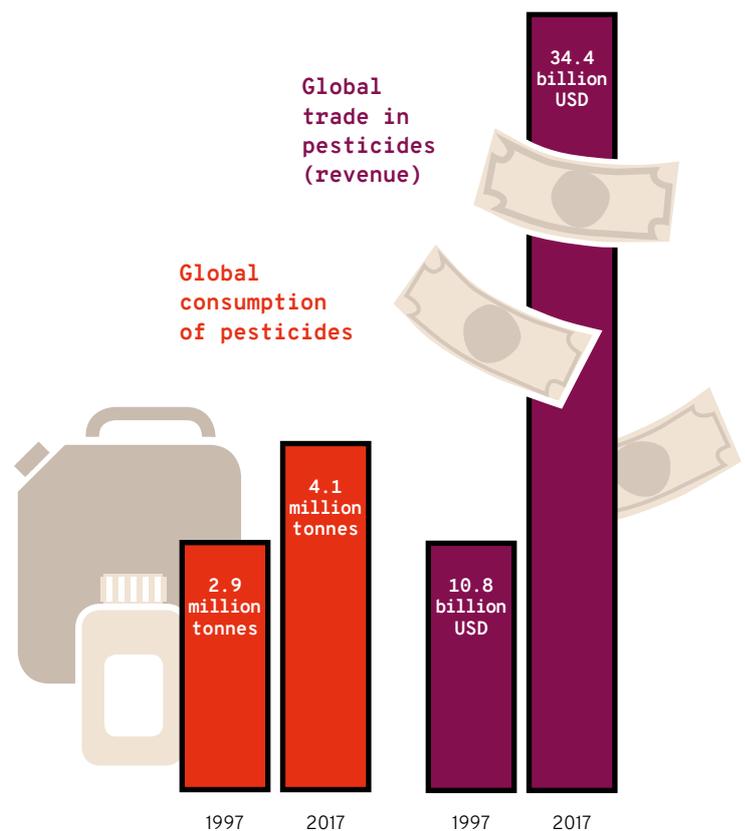
show the double standards in the global market for pesticides. Together, the two companies market at least 28 active ingredients in South Africa and Brazil that are not approved in the EU—whereas BASF sells 13 at a minimum, Bayer sells at least 15. Seven of these active ingredients (five from Bayer, two from BASF) were either rejected following the review process or their approval was explicitly revoked by the EU. A total of 14 active ingredients from Bayer and BASF can be found on the PAN list of highly hazardous pesticides, six from BASF and eight from Bayer. The Bayer AG sells the hazardous active ingredients carbendazim and propineb, and at BASF one can find chlorfenapyr, cyanamide, glufosinate and saflufenacil, for example (for more detailed information, see Appendices 1 and 2). The marketing of pesticides in South Africa and Brazil exemplify the significant role that highly hazardous pesticides have for Bayer and BASF's business worldwide: 36.7 percent of the active ingredients sold worldwide by Bayer and 24.9 percent of BASF's active ingredients are highly hazardous according to the PAN definition.²

Exports of active ingredients to third countries from Germany 2017



Source: PAN Germany, „Giftige Exporte: Ausfuhr hochgefährlicher Pestizide von Deutschland in die Welt“, 2019, <https://pan-germany.org/download/giftige-exporte-ausfuhr-hochgefährlicher-pestizide-von-deutschland-in-die-welt/>. PAN data is cited according to: Federal Office for Consumer Protection and Food Safety, “Absatz an Pflanzenschutzmitteln in der Bundesrepublik Deutschland”, 2018, https://www.bvl.bund.de/SharedDocs/Downloads/04_Pflanzenschutzmittel/meld_par_64_2017.pdf?__blob=publicationFile&v=2.

The German corporations Bayer and BASF play a pivotal role globally. After the acquisition of Monsanto, the notorious manufacturer of glyphosate, in 2018, the German corporation Bayer became the leading company on the global commercial seed market. At the same time, it became the second-placed company on the global market for pesticides with an annual turnover of 10.6 billion USD in 2018—behind only Syngenta (owned by ChemChina since 2017). BASF also benefited from the merger between Bayer and Monsanto in that BASF bought up certain lines of business that Bayer had to cede due to restrictions imposed by antitrust authorities. As a result, BASF has risen to become the third-ranked agrochemical company in the world, with sales reaching 6.9 billion USD.³ After China, Germany is the second most important pesticide exporter worldwide with an export volume of 4.3 billion USD, placing it ahead of the United States, which had sales totalling 4.2 billion USD in 2018. Germany also holds a share of almost twelve percent of global exports of pesticides.⁴ Furthermore, it should not be forgotten that Monsanto’s former production facilities in the USA now belong to Bayer AG



Global market for pesticides

Development of the global trade in pesticides and consumption of pesticides between 1997 and 2017 (revenue in US dollars and consumption in tonnes)

Source: FAOSTAT, 2019, <http://www.fao.org/faostat/en/#home>.

and that German companies therefore have an even larger share of exports, particularly to countries from the Global South, as Bayer exports to other countries from the United States.

The fact that Bayer and BASF market highly hazardous pesticides in the Global South that are not allowed to be in circulation in the EU at all contributes to the appalling fact that 99 percent of deaths from pesticide poisoning occur in Africa, Asia, and Latin America.⁵ It is estimated that three million people are treated for acute pesticide poisoning every year and that 25 million suffer from less acute poisonings and that between 20,000 and 40,000 people die at their workplaces from pesticide poisoning.⁶ The reasons for the particularly frequent poisonings in countries from the Global South include low-threshold approval procedures, insufficient education regarding the hazardous nature of the active ingredients contained in the products, and often inadequate occupational safety. The companies producing the pesticides claim that

their products are safe if they are used correctly and marketing approval is based on the supposition of “safe use”. Practice shows, however, that in many cases a safe application of the product cannot be guaranteed—both the supervising authorities as well as the companies are aware of this.⁷ Smallholder farmers and plantation workers—for instance, on citrus plantations in South Africa—often use pesticides without receiving the necessary training or protective clothing, and without the proper precautions being taken, thereby risking their health and that of their families. Residents in rural communities in Brazil for example have related accounts of airplanes spraying pesticides within the immediate vicinity of their housing complexes. They also often lack an appropriate infrastructure for disposal (such as containers or collection points) as well as education about the safe disposal of pesticides. Pesticides have long been detectable in large parts of the world’s soils and waters. Aside from the negative consequences for human health and the environment, the use of chemically synthesized pesticides is associated with

Box 1: What are highly hazardous pesticides?

Since 2009, the international Pesticide Action Network (PAN) has been publishing a list of highly hazardous pesticides (HHPs) based on the criteria of the UN Food and Agriculture Organization (FAO) and the World Health Organization (WHO)—criteria which PAN has expanded and clarified. The individual criteria are divided into the following four hazard groups: acute toxicity, long-term (chronic) health effects, environmental hazards and a list of pesticides to be regulated according to international agreements.

The current PAN list comprises 310 active ingredients, see: <https://pan-germany.org/download/pan-international-list-of-highly-hazardous-pesticides/>. The FAO and the WHO have also developed a common definition of HHPs. More information can be found at: www.fao.org/agriculture/crops/thematic-sitemap/theme/pests/code/hhp/en/. In this publication, whenever we refer to HHPs, we are referring to the PAN definition.

dependency and debt for many smallholder farmers due to their high costs. But there have also been positive developments. In addition to the coalitions of non-governmental actors across the world who are working to have an agricultural sector free of pesticides, there is also increasing government regulations in a number of countries. In the last five years, 14 governments in Africa, Asia, and Latin America have banned or at least restricted the import and/or use of glyphosate, for instance.⁸

Approval and marketing of pesticides around the world

Whenever the question is raised why corporations like Bayer and BASF bring certain active ingredients onto the market in the Global South that are not approved in the EU, they usually argue that different crops and different climates require different active ingredients

to fight against weeds or insect pests. As a result, they would not even submit many of the active ingredients for approval in the EU. And yet, research done by the authors of this brochure shows that there are a number of active ingredients from Bayer and BASF on the market in the Global South that were initially approved in the EU before being banned due to the risks to humans and nature, including cyanamide from BASF and propineb from Bayer. This is an unacceptable risk: the health hazards are the same for everyone on the planet—regardless of geographical scope. At the same time, the fact that an active ingredient was never registered for testing in the EU could also have strategic reasons. In some cases, companies anticipate that a particular active ingredient won't pass the complex testing at EU level and so, for cost efficiency reasons, submit it in a country with weaker regulations and a more lenient licensing procedure.

Box 2: Pesticides—active ingredients versus products

The term pesticide—the industry term is “plant protection products”—includes herbicides (for destroying weeds), insecticides (for killing insects) and fungicides (for destroying fungi). The term is vague however, since a distinction should be made between active ingredients and the finished pesticide products (also called preparations or formulations), which also contain auxiliary substances and, whenever appropriate, solvents.

This is important for approval policy. In the case of the EU, it is individual active ingredients that are approved by the European Commission—after they have been tested by the European Food Safety Authority (EFSA). Only then can the individual EU member states authorize pesticide products for sale that contain the active ingredient in question. In Germany, the Federal Office of Consumer Protection and Food Safety (BVL) and the Federal Environment Agency are responsible for this.

Bayer and BASF pursue several strategies when marketing their pesticides outside of the EU. First, they export pesticide formulations to third countries that are entirely manufactured in Germany—particularly to a number of small, economically weak countries in the Global South. Second, Bayer operates its own production facilities in South Africa and Brazil, as does BASF in South Africa at least, where all the other steps in the production and logistics of active ingredients take place that are unrelated to their manufacture—i. e. the

formulation of the pesticide products, the packaging, and the distribution, etc. Third, a crucial marketing strategy is related to the export of active ingredients. Companies in the countries in question import them—from Bayer and BASF, amongst others—and then process them into the end product. In this way, it is no longer visible on the packaging that the active ingredients were originally manufactured by Bayer or BASF.

Box 3: International agreements on pesticide regulation

Given the risks pesticides pose to human health and the environment, effective mechanisms of protection and regulation are urgently needed. With particular reference to countries of the Global South, the executive council of the UN's Food and Agriculture Organization (FAO Council) indicated as early as 2006 that certain pesticides cannot be used in countries in the Global South without causing damage, and recommended a gradual ban on highly hazardous pesticides. In addition to national approvals and application requirements, two voluntary frameworks and four binding international conventions regulate the trade and management of pesticides. They are:

The International Code of Conduct for Pesticide Management (Code of Conduct)—The code applies to all pesticides and contains voluntary codes of conduct for the trade and handling of pesticides. Article 3.4 on the export of pesticides states that governments of pesticide exporting countries should, to the extent possible, ensure that good trading practices are followed in the export of pesticides, especially with those countries that have not yet established adequate regulatory schemes.¹⁰

The Strategic Approach to International Chemicals Management (SAICM)—Based on a voluntary agreement, the SAICM aims to minimize the negative effects of chemicals on health and the environment by 2020. A follow-up agreement on management of chemicals and waste for the SAICM is to be adopted at a conference in October 2020.

The ILO Convention on Occupational Safety and Health (ILO Convention 155)—This convention defines various aspects of a cohesive policy to ensure occupational health on a national level. The policy covers safety at workplaces in relation to the use of machinery and chemical substances, including pesticides. The convention is ratified by states and is binding.

A lack of information and of regulation

Unfortunately, there is still a lack of transparency in accessing the data on international trade of pesticides. Even Germany's Federal Office of Consumer Protection and Food Safety (in German: BVL) only publishes which active ingredients have been exported in what rough order of magnitude; it does not say which countries they were exported to, and in what quantities, or which

companies produced the active ingredients. Only certain particularly hazardous pesticide active ingredients and pesticide formulations (currently 31 pesticide active ingredients and seven pesticide formulations) are subject to compulsory registration on an international level, including disclosing information about the recipient country. These include active ingredients that are listed as so-called PIC pesticides in Appendix III of the Rotterdam Convention.⁹

The Stockholm Convention on Persistent Organic Pollutants (Stockholm Convention)—The convention, which is binding under international law, contains bans and restrictive measures for certain persistent organic pollutants (POP).

The Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (PIC Convention)—This agreement, which is binding under international law, stipulates that the importing countries must actively consent to the import of certain active ingredients of pesticides coming from the exporting country (Prior Informed Consent, PIC).

The Montreal Protocol—This binding convention obliges the signatory states to reduce and in the long term completely eliminate emissions of chemicals containing chlorine and bromine, which deplete the ozone layer. Included is the pesticide active ingredient methyl bromide.

To date, only 3.3 percent of the active ingredients in pesticides that are used and traded worldwide are regulated in a binding manner by the Stockholm Convention, the PIC Convention or the Montreal Protocol. This means that the majority of trade and application of pesticides is regulated by national laws and voluntary guidelines. The fact that standards vary across countries makes it possible for companies to move their products to countries with weaker requirements, if they are no longer approved in the EU, for example. The fact that it has not yet been possible to prevent harm to people and the environment caused by the application of pesticides that are at times highly hazardous demonstrates that the existing agreements do not provide sufficient and effective protection.

South Africa

Bayer und BASF put the health of farm workers at risk



Source: The figures were provided by the South African Revenue Services at the request of the authors. The figures were converted from ZAR to EUR at an exchange rate of 16 to 1.

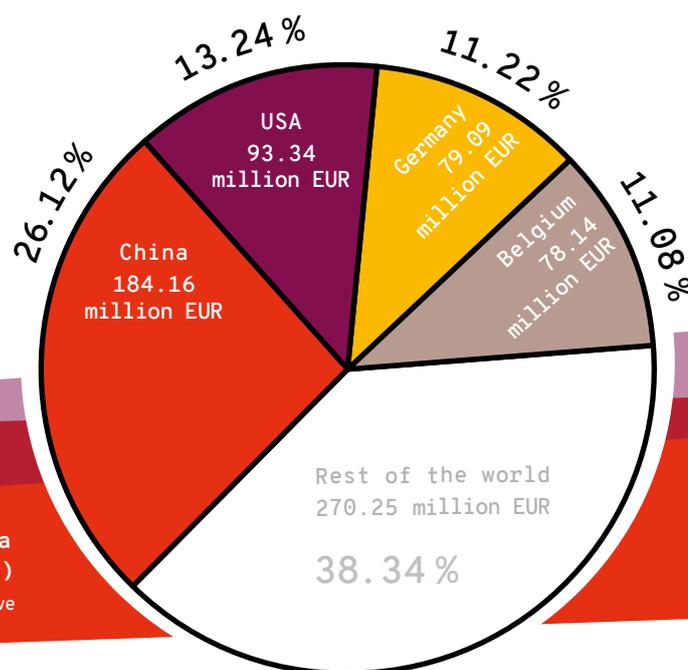
South Africa comprises the largest market for pesticides and other agrochemicals on the African continent and is therefore of great importance for transnational chemical companies. More than 3,000 pesticide products are authorized in the country.¹¹ South Africa's share of the African agrochemicals market has steadily risen in recent years and is currently around 35 percent.¹² The other major markets are Algeria, Côte d'Ivoire, Egypt, Ghana, Kenya, Morocco, and Nigeria.¹³ Not only is South Africa one of the largest consumers but also one of the largest importers of pesticides on the continent.¹⁴ While around 178 million USD worth of active ingredients and pesticide products were imported into the country in 2007, imports have more than doubled to 440 million USD in ten years.¹⁵ Most of the pesticides imported to South Africa came from China, USA, Germany, and Belgium. In the last two years, German companies have supplied the country with pesticides worth around 80 million EUR. Germany is thus ranked third among the countries from which South Africa has received its pesticides.¹⁶

In the last 20 years, South Africa has also become an important point for the re-export of pesticides to the entire region. In only 17 years between 2000 and 2017, the value of exports of pesticide products has risen from

just over 100,000 USD to more than 240 million USD per year. According to market analyses, this trend is set to continue into the future.¹⁷

Bayer and BASF in the South African pesticide market

German agrochemical companies play an important role in the South African pesticide market. Bayer has been doing business in the country since the 1950s and BASF has been present in the country since 1966. Currently, Bayer offers 80 pesticide products on the market and BASF has 53 products in its South African portfolio.¹⁸ Bayer has been producing some of its own pesticide products at its production facility in the town of Nigel, south east of Johannesburg, since the 1980s and markets them both in South Africa and in neighbouring countries.¹⁹ BASF has also constructed its own production capacities in South Africa. Both of these German agrochemical giants sell some pesticide products in South Africa containing active ingredients that were either never approved by the EU or had their permit revoked due to excessive risks. Bayer's product range offered in South Africa contains at least seven active ingredients without EU approval, and BASF's has



Value of pesticide exports to South Africa
(sorted by country of origin)

Figures in EUR for the period from January 2018 to October 2019 inclusive

at least four such active ingredients. The EU approval has even been explicitly revoked for three of the active ingredients at Bayer—carbofuran, propineb, and thiodicarb. Five of Bayer's seven active ingredients are classified as highly hazardous by PAN. According to the BVL, four of the active ingredients were exported from Germany to South Africa in 2018, including the particularly hazardous propineb in large quantities of between 1,000 and 2,500 tonnes. A similar story can be told of BASF: the active ingredient chlorfenapyr is on the PAN list of highly hazardous pesticides and was exported from Germany to South Africa, according to the BVL list in 2018 (for more detailed information on the active ingredients from Bayer and BASF in South Africa, see Appendix 1).²⁰

Farmers buy pesticides in South Africa from registered agrochemical traders whose sales outlets are located throughout the country. Thirty pesticide dealers with distribution networks of various sizes are members of CropLife in South Africa, the largest agrochemical interest group.²¹ While, as a rule, pesticide dealers offer the products of various South African companies, both Bayer and BASF apparently sell their products via a few, selected dealers who then offer them to farmers.²²

The use of active ingredients in their own pesticide products that are not approved in the EU is only the tip of the iceberg. There exists a de facto division of labour in the pesticide sector between the transnational corporations Bayer and BASF on the one hand and the large number of South African companies on the other. The complex, lengthy, and cost-intensive research and development of creating new active ingredients is carried out by the transnational corporations. By contrast, the South African companies import the active ingredients and use them to formulate pesticide products that they market under their own labels. One hundred percent of the active ingredients that form the basis of the pesticide products formulated in South Africa are currently imported.²³ Since the individual active ingredients are produced only by a limited number of transnational corporations, the South African pesticide producers are heavily dependent on them.²⁴ Even if the actual supply chains are not transparent, it is clear that only a portion of the active ingredients made by Bayer, BASF, and other pesticide companies enter the South African market via their own pesticide products. Another portion of their active ingredients ends up in the country via the pesticide products manufactured by South African companies. The list in Appendix III of the PIC Convention provides a small

glimpse into this market. One of the active ingredients in this list is cyfluthrin, which was exported from Germany to South Africa and elsewhere in 2018.²⁵ Cyfluthrin can cause allergic skin reactions and is harmful when inhaled. Nevertheless, the active ingredient cannot be found in any pesticide product sold by German companies in South Africa. Interestingly, Bayer was not only the applicant but also the main provider of data for the approval procedure in the EU in the 1990s.²⁶ The active ingredient was never approved by the EU.

Transparency and monitoring of pesticides

According to data from PAN, almost 500 active ingredients are registered in South Africa.²⁷ 67 of those are not approved in the EU and a further 121 are classified as highly hazardous by PAN.²⁸ There is hardly any publicly available information in South Africa regarding the import of specific active ingredients or of pesticide products. For example, there is no data specific to any company. Enquiries by the authors to the public

authorities in South Africa as well as to Bayer and BASF were only answered in an insufficient manner, if at all.

The South African Department of Agriculture, Forestry and Fisheries (DAFF) is primarily responsible for the regulation of the pesticide market. The ministry's responsibilities include authorizing and controlling the production, distribution, and sale of pesticides. The majority of pesticides are not re-tested after being approved. That is very worrying because information on the specific effects on human health and the environment are often only available to a limited extent at the time of authorization. In particular, scientific findings on more complex toxicological interrelationships were often only gathered in South Africa in recent years or are only expected in the coming years.²⁹ The South African government has signed both the Stockholm Convention as well as the PIC Convention on the handling of highly toxic pesticides. Scientific analyses conclude however that South Africa is not yet in a position to fulfil its obligations to monitor and evaluate the handling of highly toxic pesticides according to the two conventions.³⁰



Photos: © Benjamin Luig

The lack of health protection for workers on citrus farms in South Africa is drastic.

Labour rights violations in the agricultural sector

Numerous studies in recent years have shown that fundamental violations of labour rights, especially with regards to occupational health, are occurring in South Africa's agricultural sector—also on farms that produce for the global market.³¹ For example, a wide-ranging investigation in the wine sector based on interviews with over 300 women farm workers in the Northern Cape and Western Cape provinces revealed blatant violations of labour rights: 51 percent of the interviewed women workers stated that they returned to work in the fields within 60 minutes after pesticides being sprayed. 66 percent of the workers reported that the farm management does not provide them with any protective clothing. 73 percent of the farm workers stated that the risks associated with the application of pesticides were not explained to them.³² These widespread forms of labour rights violations are also related to the ongoing antagonistic labour relations between the mostly white farmers and black workers. During the Apartheid era, no labour rights applied to the agricultural sector or to

those working in it at all. Even in the early 1990s, it was still common in the Western Cape for farm workers to stand on the fields as living markers while pesticides were sprayed from planes on the fruit plantations.³³

Toxic BASF pesticides on citrus farms

Taking the example of farms in the citrus sector, the effects of the application of pesticides on workers in the agricultural sector and their families in the context of problematic working conditions can be illustrated. The Eastern Cape province is the leading region for the cultivation of citrus fruits. Many citrus farms there also grow fruit for the European market and are therefore certified according to the SIZA and GlobalGap standards.³⁴ In the Gamtoos Valley and in the Sundays River Valley, there are specific pesticide dealers who sell Bayer and BASF products.

On the **Farm Nuwelande**,³⁵ citrus fruits are grown for export, and potatoes and other vegetables are



The investigated farms Nuwelande, Hillside and Panzi grow citrus fruits for the European market.

On the Farm Nuwelande, the drinking water is located right next to the plantation where pesticides are applied.



Photos: © Benjamin Luig

grown for the domestic market. The farm employs 45 permanent workers, who also live there. In addition, the farm employs around 70 migrant workers from Zimbabwe. These “labour broker workers” are only employed on a seasonal basis. The workers use BASF’s herbicide Treevix, which contains the active ingredient saflufenacil, an ingredient that is not approved by the EU. Saflufenacil and other herbicides are used on the farm in combination with Dash, also from BASF. Dash contains methylester, oxirane, and naphthalene. It is a supplement, which means that it enhances the effect of herbicides and fungicides. Dash is also used in the EU member states. According to the product description, Dash causes severe eye damage and can be fatal if inhaled.³⁶

In interviews, the workers said that permanent staff members receive basic protective clothing and masks from the farm management, but that the migrant workers do not. Furthermore, the spraying of pesticides takes place when the migrant workers are only one row of trees away. As such, there is no way to prevent them from inhaling the chemicals. The workers receive

health training on the farm once a year, as prescribed by GlobalGAP. But the workers consistently report that they have symptoms such as headaches as well as itchy faces and arms from working with the pesticides. Another fundamental problem is drinking water. Some of the farm workers and their families get their drinking water from a small reservoir near the plantation, where pesticides are regularly applied. The product description of Dash stresses that the product is toxic to aquatic organisms and will harm them in the long term.

The example of **Hillside citrus farm**,³⁷ which is located right next to Nuwelande, shows how acutely dangerous the lack of occupational safety can be for the workers. Hillside is also certified by SIZA and GlobalGAP. There are 21 permanent members of staff and 50 migrant “labour broker workers”. This farm also uses BASF’s herbicide Treevix and the workers here also report that spraying and other work are being done in their immediate vicinity. The workers have also related what happened to their colleague Jonas Zibano, a tractor driver at Hillside.³⁸ The tractors used on the farm for spraying have open cabs. When Jonas

On citrus farms in South Africa, BASF products contain active ingredients that are not approved by the EU.



applied pesticides in March 2017, a gust of wind blew the chemicals directly in his face, causing acute lung poisoning. The farm manager refused to drive Jonas to the nearby hospital. Instead, he had to be picked up by an ambulance. When Jonas returned to the farm after several weeks in the hospital, he continued working as a tractor driver. The working conditions had worsened, however. Instead of having a permanent position, he was now only employed on a seasonal basis by the management.

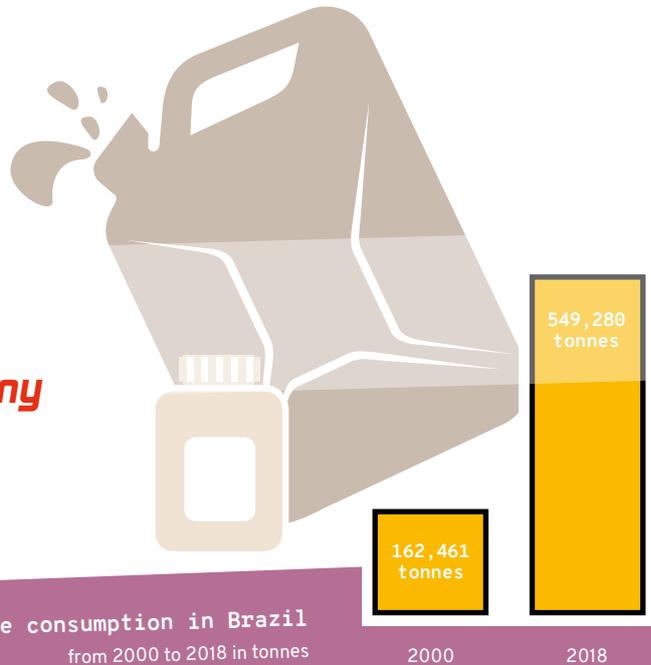
A third example is the **Panzi citrus farm**.³⁹ It is also located in Eastern Cape, in the Sundays River Valley near the small town Kirkwood, in another important citrus-growing region. Panzi is also certified by SIZA and GlobalGAP and grows citrus fruit for the US and European markets, among others. There are 60 permanent workers and an additional 140 seasonal workers at harvest. The Panzi farm uses BASF's insecticide Hunter 24. Hunter contains the active ingredient chlorfenapyr. The substance is not approved for use in the EU. It is considered harmful if swallowed, toxic if inhaled, and very toxic for aquatic organisms.

Workers report that a large portion of the pesticides have to be mixed before they can be used and that they inhale some of the substances during the preparation. They also report symptoms like itchy throats. While the workers receive an annual check-up, they do not receive their medical reports, despite asking for them. They are simply verbally told that everything seems to be fine. They, too, report cases where workers have become ill from working with pesticides and say that in two cases the workers even had to be relieved due to their poor health after working with pesticides.

Similar inadequate standards of occupational health protection can be observed on other farms in the region. The cases of Nuwelande, Hillside, and Panzi exemplify just how widespread blatant violations of labour laws that contravene the requirements prescribed by the South African government's Occupational Health and Safety Act as well as those of SIZA are. Given that BASF has its own distributors of pesticides in the region, the company is partly responsible for the inadequate use of its pesticide products.

Brazil

Agricultural poisons from Germany threaten Indigenous groups



Growth of annual pesticide consumption in Brazil
from 2000 to 2018 in tonnes

2000

2018

Source: Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis, 2019, http://www.ibama.gov.br/phocadownload/qualidadeambiental/relatorios/2018/Historico_2000_2018.xls and <http://www.ibama.gov.br/phocadownload/qualidadeambiental/relatorios/2018/grafico%20-%20Consumo%20agrototoxicos%202000-2018.pdf>.

Brazil is one of the countries with the highest pesticide use worldwide. In 2018, the pesticide industry in Brazil recorded a turnover of 10.8 billion USD, a 20 percent jump on the previous year.⁴⁰ Since the end of the 1990s, Brazilian agriculture has specialized in the large-scale cultivation of certain crops, particularly soya, maize, and sugarcane. Between 1998 and 2018, the area under cultivation for growing these three crops more than doubled, while the total area used for agriculture grew by 30 percent.⁴¹ The agricultural model behind these trends is based on the intensive application of pesticides, chemically synthesized fertilizers, and genetically modified seeds. As a result, annual national pesticide consumption more than tripled between 2000 and 2018, from approximately 162,000 to about 549,000 tonnes.⁴²

Since the extreme right-wing president Jair Bolsonaro was elected in January 2019, the political conditions for the massive application of pesticides have become even more “favourable”. Under Bolsonaro, the approval process for new pesticide products has been accelerated. In 2019 alone, 474 new pesticide products were approved, of which 152 within the president’s first 100 days in office. This means that the Bolsonaro government has already approved more pesticides

than any other government before it in a comparable period. This includes 42 products that are not authorized by EU-member states.⁴³ In June 2019, the EU and the Mercosur countries concluded a trade agreement. Once it comes into force, tariff reductions could make the import of pesticides even easier and cheaper.⁴⁴

The differences between the regulation of pesticides in Brazil and in the EU are striking. 44 percent of the active ingredients registered in Brazil are not approved in the EU.⁴⁵ There are also major differences in the permissible limits for pesticide residues in water. While in the EU, for example, drinking water may contain “just” 0.1 micrograms of glyphosate per litre, the limit in Brazil is 500 micrograms per litre, which is 5,000 times higher.⁴⁶

German companies are among those marketing products with active ingredients in Brazil that have not been approved in the EU. BASF sells at least 12 active ingredients in Brazil which lack EU approval. Approval of two active ingredients (cyanamide and flufenoxuron), was explicitly rejected in the EU after the review process was concluded. Six of them are also on the PAN list of highly hazardous pesticides. According to BVL’s export list for 2018, some of these active ingredients, such

Children from the village of Guyraroká play immediately adjacent to a field where dangerous pesticides are regularly applied.



Photo: © Leandro Barbosa

as cyanamide and glufosinate, were exported from Germany to Brazil in large quantities, between 2,500 and 10,000 tonnes. The picture is similar for Bayer: at least 12 active ingredients without EU approval are on the Brazilian market, four of which are active ingredients whose approval has been explicitly refused or revoked by the EU authorities (fenamidone, propineb, thiodicarb, and thiram). Six of the twelve active ingredients are classified as highly hazardous by PAN. According to the BVL, three of them, oxadiazon, propineb, and thiram, were exported directly from Germany in 2018 (for more detailed information on active ingredients exported to Brazil by Bayer and BASF, see Appendix 2).⁴⁷

Bayer and BASF always point out that they comply with the respective national pesticide laws. Both companies, however, neglect to mention how they themselves exert influence on how these laws are drafted. Both companies are members of the agrochemical interest groups ANDEF (Associação Nacional de Defesa Vegetal—now merged into CropLife Brazil) and SINDIVEG (Sindicato Nacional da Indústria de Produtos para Defesa Vegetal), which openly support a bill known in Brazil as the “poisons package”.⁴⁸ This bill is intended to further simplify the approval

of pesticides in Brazil—including those that are carcinogenic, or that may damage genetic material or cause reproductive problems.

Pesticide poisoning: a fundamental violation of human rights

Serious health problems resulting from the widespread use of pesticides are known to the Brazilian National Cancer Institute (Instituto Nacional de Câncer José Alencar Gomes da Silva, INCA).⁴⁹ According to the Brazilian Ministry of Health, 7,200 pesticide poisonings were registered in 2017; the number of unreported cases is probably much higher. Particularly in the case of diseases such as cancer, official sources do not make links with pesticides.⁵⁰

Population groups whose health are particularly at risk include workers who apply pesticides and residents in areas where pesticides are produced or used. These are often population groups that in social policy terms are largely marginalized. It was only as late as 2018 that a report by Human Rights Watch documented the health consequences of pesticide use for rural communities in more detail.⁵¹ Here

Asthma, cough, difficulty breathing: sprays deployed on the nearby field put school pupils in the Indigenous village of Guyraroká at risk.



Photos: © Leandro Barbosa

the consequences for Indigenous and Afro-Brazilian groups (*quilombolas*)⁵² and smallholder farming families are particularly striking. The situation is extremely dangerous when pesticides are sprayed from airplanes—a practice that is still legally permitted in most Brazilian states. Many rural communities condemn this method of applying pesticides, as the risk of drift is particularly high. Communities also report cases where aerial spraying is used as a “chemical weapon” to drive them off their land.

A pesticide cloud poisons an Indigenous village in the Brazilian state of Mato Grosso do Sul

In May 2019, a pesticide cloud enveloped the village of Guyraroká of the Guarani-Kaiowá people in the state of Mato Grosso do Sul, 275 kilometres from the state capital Campo Grande. The cloud contained a mixture of pesticides and lime, which were being applied on a neighbouring farm. When the toxic cloud was blown into the village by the wind, 15 children were just sitting down to eat at school. The village school is only 50 metres from a fence separating the Guarani-Kaiowá territory from the Remanso II farm. Afterwards, several

people—mostly children and elderly people—showed symptoms of poisoning.⁵³ Those affected were taken to the emergency room of the Caarapó municipal hospital. The children suffered from asthma, dry cough, shortness of breath, vomiting, chest pain, stomach aches, and headaches. Animals, including dogs and chickens, died as a result of the poisoning.⁵⁴ In the days that followed, toxic dust also contaminated the gardens and the food crops the community had planted. Erileide Domingues, a community leader from Guyraroká, reports: “We don’t have much food in the village, and we can’t afford to throw it away. We tried to protect ourselves, but the dust covered everything. It affected everyone, from babies to old people. Many people felt ill.”⁵⁵ The village had long since drawn attention to the dangers of spraying in the area. Families say that pesticides are often sprayed, whether on the ground or from the air. The noise of agricultural equipment and airplanes disturb school lessons, while the landscape is transformed into monocultures of soy, sugarcane, and maize. From Domingues’ point of view, the use of pesticides near and above the village is intentional: “The threats are permanent. They throw poison at us, they watch and threaten us, they look for different ways to intimidate us.” The Indigenous community currently lives in precarious conditions. The demarcation of their

Pesticide deployed as a “chemical weapon”—Indigenous villages are to make way for monocultures.



Indigenous land was annulled by a court in 2014, and the Guarani-Kaiowá are living in provisional tent camps, awaiting a new ruling.

When applied, the pesticides also end up in drinking water. Between 2014 and 2017, tests carried out by the water authority Sisagua (Sistema de monitoramento da qualidade da água no Brasil) found evidence of 27 different active ingredients in the groundwater of Caarapó. Eleven of these active ingredients are linked to diseases such as cancer, miscarriages, and endocrine disorders. One of them is carbendazim, an active ingredient in Bayer’s product Derosal Plus, which is not approved in the EU.⁵⁶ Carbendazim is classified by PAN as highly hazardous. The EU has classified carbendazim as mutagenic and toxic to reproduction. The active ingredient is also toxic to aquatic organisms and causes them long-term damage.⁵⁷

In January 2020, in an unprecedented court decision, a farmer, a pilot and a contractor for sprayers were ordered to pay 150,000 BRL (approximately 31,700 EUR) in compensation. They had been spraying pesticides from the air. As a result, they will have to pay the money to the Indigenous community of Tey’i Jusu (in the administrative district of the same name). In this

case the Bayer fungicide Nativo was applied less than 30 metres away from the Indigenous people’s temporary shelters. After Nativo was sprayed, the villagers suffered from symptoms such as headaches, sore throats, diarrhoea, and fever.⁵⁸ Nativo comprises the active ingredients tebuconazole and trifloxystrobin. Both are approved in the EU, although tebuconazole has been classified as likely to be toxic to reproduction. In Europe, the warning “may potentially harm unborn children” is therefore mandatory.

Companies like Bayer and BASF are aware that pesticides are applied from the air in Brazil and that their products pose a danger to people and the environment. Market concentration at the global level has a direct impact on the living conditions of people in Brazil. In combination with the complete failure of the Brazilian state to protect vulnerable groups, transnational pesticide companies are free to do as they like, even when marketing very toxic products in Brazil. While the profits flow to the USA, Europe or China, local people are permanently confronted with the resulting health problems and environmental damage.

Double standards

why governments need to take action

As the examples from South Africa and Brazil show, companies such as Bayer and BASF continue to sell pesticides on the global market that are highly hazardous to human beings and the environment and are not approved in the EU. In mid-2019, Bayer announced that it would only market pesticides in countries of the Global South if, in addition to local standards, the standards of a “majority of the leading regulatory authorities” were met.⁵⁹ In response to a request from the Association of Ethical Shareholders Germany, Bayer said that the reference was to the authorities of the following countries or regions: the United States, Canada, Brazil, the EU, Australia, New Zealand, Japan, and China.⁶⁰ Similarly, as recently as January 2020, the BASF website read: “We promise never to compromise on safety—from production to the handling of our products.”⁶¹

Nevertheless, the example of exports of highly toxic pesticides such as carbendazim, chlorfenapyr, and saflufenacil illustrates how both corporations are massively violating their due diligence obligations regarding human rights. In the cases presented in South Africa and Brazil, the human rights to health (Article 12 of the International Covenant on Economic, Social and

Cultural Rights, ICESCR), water (Article 11, ICESCR), life (Article 6 of the International Covenant on Civil and Political Rights, ICCPR), and the right to safe and healthy working conditions (Article 7b, ICESCR) are violated.

First and foremost, it is the governments in South Africa and Brazil that have a responsibility to protect the rights of farm workers and Indigenous peoples in those countries. In view of the documented human rights violations, the assumption that pesticides are being used “safely” proves illusory. In order to protect people and the environment from the consequences of the application of pesticides, legal regulations must therefore be tightened. Individual pesticide importing and exporting countries are already restricting trade in hazardous pesticides (see Box 4). As important players in the global pesticide market, South Africa, Brazil, and Germany could also make much greater use of their legal options than they have to date. For example, the German Pesticides Act authorizes the Federal Ministry of Food and Agriculture (BMEL) to issue a regulation prohibiting the export of pesticides to countries outside the EU if this is necessary to protect humans, animals, and the environment (paragraph 25, section 3).

Box 4: Prohibition in France on exporting pesticides

In October 2018, a law was passed in France prohibiting the production, storage, and (global) marketing of pesticide products containing active ingredients that are not approved in the EU either on environmental protection grounds or for the protection of human and animal health (law no. 2018-938, “lawEGAlim”). Attempts to appeal and thereby postpone the date of entry into force were rejected by the Constitutional Court in 2019, so that the law is now to enter into force in 2022. The lawsuit was filed by the French agricultural chemicals lobby association, of which Bayer and BASF are members.

Demands

addressed to the respective governments and corporations

Germany

- The German government needs to issue a regulation under the Pesticides Act prohibiting the export of active ingredients that are not approved in the EU.
- The German government needs to advocate for a global ban on highly hazardous pesticides (HHPs) as defined by PAN.
- The German government needs to establish much greater transparency. Information on all active ingredients and pesticides exported from Germany to third countries should be publicly available. This includes publishing the companies that export the active ingredients and pesticides.

South Africa

- The South African government needs to pass a law prohibiting the import of active ingredients and pesticide products that are not approved in the EU or other countries.
- The South African government needs to ban the trade and use of HHPs (as defined by PAN).

Brazil

- The Brazilian government needs to adopt a law prohibiting the authorization, manufacture, processing, application, and import of active ingredients that are not approved in the EU or other countries.
- The Brazilian government needs to ban the spraying of pesticides by aircraft throughout the country, following the example of the state of Ceará, where this is already the case.

Agrochemical corporations

- Bayer, BASF, and other agrochemicals corporations need to cease the export of HHPs (according to the PAN definition) to countries in the Global South such as Brazil and South Africa.
- Bayer, BASF, and other agrochemicals corporations need to remove all highly hazardous pesticides on the PAN list from their global product portfolios as soon as possible.

Appendix 1

Overview of Bayer and BASF active ingredients that are not approved in the EU but are sold on the South African market

Source: Portfolio analysis of Bayer und BASF pesticide products in South Africa and cross-checks with the EU pesticide database (including updates up to February 2020), the PAN list of highly hazardous pesticides (including updates up to March 2019) and the 2018 list published by the Federal Office of Consumer Protection and Food Safety (BVL) concerning sales of plant protection products in Germany.

	Active ingredient + application	Properties	EU approval status	An HHP according to PAN list	2018 exports from Germany (in tonnes)
BASF	Chlorfenapyr Insecticide	Harmful if swallowed, toxic if inhaled, and very toxic for aquatic organisms (both acutely and with long lasting effects)	Not approved	Yes, highly toxic to bees	< 1.0
	Hydramethylnone Insecticide	No classification in the EU database	Not approved	No	None
	Imazapyr Herbicide	Causes serious eye irritation and harmful to aquatic organisms with long lasting effects	Not approved	No	None
	Saflufenacil Herbicide	No classification in the EU database	No application for approval yet	No	None
Bayer	Carbofuran Insecticide	Fatal if swallowed, fatal if inhaled, and very toxic for aquatic organisms (both acutely and with long lasting effects)	Not approved, explicitly rejected after evaluation	Yes, acute toxicity, highly toxic for bees, and listed in the PIC Convention	None
	Oxadiazon Herbicide	Very toxic for aquatic organisms (both acutely and with long lasting effects)	Not approved, authorized in Portugal subject to restrictions	Yes, probably carcinogenic according to the US Environmental Protection Agency	2.5 to 10
	Propineb Fungicide	May trigger allergic reactions of the skin, harmful if inhaled, damages organs in the long term, and very toxic for aquatic organisms	Approval explicitly revoked in 2018, authorized in Malta and Romania nonetheless	Yes, probably carcinogenic according to the US Environmental Protection Agency	1,000 to 2,500
	Pyroxasulfone Herbicide	No classification in the EU database	No application for approval yet	No	None
	Thidiazuron Growth regulator	No classification in the EU database	Not approved	No	2.5 to 10
	Thiodicarb Insecticide	No classification in the EU database	Not approved, explicitly rejected after evaluation	Yes, probably carcinogenic according to the US Environmental Protection Agency and highly toxic to bees	None
	Triadimenol Fungicide	Harmful if swallowed, may harm fertility or unborn children, may harm breast-feeding children, and toxic for aquatic organisms with long lasting effects	Not approved, authorized in ten EU member countries subject to restrictions	Yes, toxic to the reproductive system	25 to 100

Appendix 2

Overview of Bayer and BASF active ingredients that are not approved in the EU but are sold on the Brazilian market

Source: Portfolio analysis of Bayer und BASF pesticide products in Brazil, cross-checks with the EU pesticide database (including updates up to February 2020), the PAN list of highly hazardous pesticides (including updates up to March 2019) and the 2018 list published by the Federal Office of Consumer Protection and Food Safety (BVL) concerning sales of plant protection products in Germany.

	Active ingredient + application	Properties	EU approval status	An HHP according to PAN list	2018 exports from Germany (in tonnes)
BASF	Chlorfenapyr Insecticide	Harmful if swallowed, toxic if inhaled, and very toxic for aquatic organisms (both acutely and with long lasting effects)	Not approved	Yes, highly toxic to bees	< 1.0
	Clothianidin Insecticide	Harmful if swallowed and very toxic for aquatic organisms (both acutely and with long lasting effects)	Not approved, authorized in five EU member countries subject to restrictions	Yes, highly toxic to bees	250 to 1,000
	Cyanamide Herbicide, growth regulator	Toxic if swallowed, toxic on contact with skin, causes severe skin burns and eye damage, may cause allergic reactions of the skin, damages organs in the long term, harmful to aquatic organisms with long lasting effects, and suspected of causing cancer, damage to unborn children, and fertility disorders	Not approved, explicitly rejected after evaluation	Yes, mutagenic, toxic to the reproductive system	2,500 to 10,000

	Active ingredient + application	Properties	EU approval status	An HHP according to PAN list	2018 exports from Germany (in tonnes)
BASF	Fipronil Insecticide	Toxic if swallowed, toxic on contact with skin, toxic if inhaled, damages organs in the long term, and is very toxic for aquatic organisms (both acutely and with long lasting effects)	Not approved, may only be authorized in EU member countries under certain restrictions	Yes, highly toxic to bees	< 1.0
	Flocoumafen Rodenticide	Fatal if swallowed, fatal on contact with skin, fatal if inhaled, may damage unborn children, damages organs in the long term, and very toxic for aquatic organisms (both acutely and with long lasting effects)	Not approved	Yes, acute toxicity, toxic to the reproductive system	< 1.0
	Flufenoxuron Insecticide	May cause harm to breastfed children and very toxic for aquatic organisms (both acutely and with long lasting effects)	Not approved, explicitly rejected after evaluation	No	None
	Glufosinate Herbicide	Harmful if swallowed, harmful on contact with skin, harmful if inhaled, may impair fertility and harm unborn children, may damage organs	Not approved, authorized in five EU member countries subject to restrictions	Yes, toxic to the reproductive system	2,500 to 10,000
	Imazapic Herbicide	No classification in the EU database	Not approved	No	None
	Imazapyr Herbicide	Causes serious irritation of the eyes and is harmful to aquatic organisms with long lasting effects	Not approved	No	None
	Quinclorac Herbicide	May cause allergic skin reactions	Not approved	No	25 to 100
	Saflufenacil Herbicide	No classification in the EU database	No application for approval yet	No	None
	Sethoxydim Herbicide	No classification in the EU database	Not approved	No	None
Bayer	Carbendazim Fungicide	May cause genetic defects, may impair fertility and harm unborn children, and very toxic for water organisms (both acutely and with long lasting effects)	Not approved, approval expired in 2016	Yes, mutagenic, toxic to the reproductive system	None
	Cyclanilide Growth regulator	Harmful if swallowed and toxic for aquatic organisms with long lasting effects	Not approved, approval expired in 2011	No	None
	Ethiprole Insecticide	No classification in the EU database	No application for approval yet	No	None
	Ethoxysulfuron Herbicide	Very toxic for aquatic organisms (both acutely and with long lasting effects)	Not approved, approval expired in 2015	No	25 to 100
	Fenamidone Fungicide	Very toxic for aquatic organisms (both acutely and with long lasting effects)	Approval was explicitly revoked in 2018, authorized in six EU member states nonetheless	No	10 to 25
	Indaziflam Herbicide	No classification in the EU database	No application for approval yet	No	100 to 250
	Ioxynil Herbicide	Toxic if swallowed, harmful on skin contact, causes serious irritations of the eye, toxic if inhaled, suspected of being harmful to unborn children, may harm organs in the long term, and very toxic for aquatic organisms (both acutely and with long lasting effects)	Not approved, approval expired in 2015	Yes	None
	Oxadiazon Herbicide	Very toxic for aquatic organisms (both acutely and with long lasting effects)	Not approved, authorized in Portugal subject to restrictions	Yes, probably carcinogenic according to the US Environmental Protection Agency	2.5 to 10
	Propineb Fungicide	May cause allergic reactions of the skin, harmful if inhaled, may damage organs in the long term, and very toxic for aquatic organisms	Approval explicitly revoked in 2018, authorized in Malta and Romania nonetheless	Yes, probably carcinogenic according to the US Environmental Protection Agency	1,000 to 2,500
	Thidiazuron Growth regulator	No classification in the EU database	Not approved	No	2.5 to 10
	Thiodicarb Insecticide	No classification in the EU database	Not approved, explicitly rejected after evaluation	Yes, probably carcinogenic according to the US Environmental Protection Agency and highly toxic to bees	None
		Thiram Fungicide	Harmful if swallowed, causes skin irritation and serious irritation of the eye, may cause allergic reactions of the skin, harmful if inhaled, may harm organs, and very toxic for aquatic organisms (both acutely and with long lasting effects)	Approval explicitly revoked in 2018, authorized in seven EU member countries nonetheless	Yes, listed in the PIC Convention in combination with benomyl and carbofuran

Endnotes

- 1** PAN Germany, "Giftige Exporte: Die Ausfuhr hochgefährlicher Pestizide aus Deutschland in die Welt", 2019, <https://ogy.de/9bz1>.
- 2** Public Eye and Uneathed evaluated data for 2018 from the company Phillips McDougall, which specializes in market analysis. The datasets cover the 43 largest markets in the world, including 21 countries with low and medium income, mainly in South America and Asia. Given the limited amount of data, the numbers are an approximation of the real total numbers. Public Eye and Uneathed, "Milliarden-Umsätze mit Pestiziden, die krebserregend sind oder Bienen vergiften", 2020, <https://ogy.de/4hgq>.
- 3** etc Group, "Plate Tech-tonics: Mapping Corporate Power in Big Food", 2019, <http://bit.ly/3b3saD5>.
- 4** D. Workman, "Top Pesticides Exporters", 2020, <https://ogy.de/2m14>.
- 5** J. Jeyaratnam, "Acute pesticide poisoning: a major global health problem", *World Health Stat Q*, 43 (3), 1990. Note: Newer scientifically based estimates on a global scale are not yet available.
- 6** World Health Organization, "Public Health Impact of Pesticides used in Agriculture", 1990 and International Labour Organization, "Chemicals in the working environment", In: *World Labour Report 7*, 1994. Note: The estimate of pesticide poisoning includes suicide attempts. More recent scientifically based estimates on a global scale are not yet available. A high number of unreported cases can be assumed.
- 7** C. Terwindt, S. Morrison, and C. Schliemann, "Health Rights Impacts by Agrochemical Business: Legally Challenging the 'Myth of Safe Use'", *Utrecht Journal of International and European Law*, 2018, vol. 34 no. 2, <https://ogy.de/mh63>.
- 8** Sustainable Pulse, "Glyphosate Herbicides Now Banned or Restricted in 20 Countries Worldwide—Sustainable Pulse Research", 2019, <https://ogy.de/ihuj>.
- 9** PAN Germany, "Giftige Exporte: Die Ausfuhr hochgefährlicher Pestizide aus Deutschland in die Welt", 2019, <https://ogy.de/9bz1>.
- 10** See the International Code of Conduct on Pesticide Management, <http://bit.ly/2WnQADK>.
- 11** J. M. Dabrowski, "Development of pesticide use maps for South Africa", *South African Journal of Science*, 2015, <https://ogy.de/csus>.
- 12** Mordor Intelligence, "South Africa Agrochemicals Market—By Type and Application—Market Shares, Forecasts and Trends (2020–2025)", 2019, <https://ogy.de/8hpq>.
- 13** Agrow, "Top 20 crop protection companies in 2016", 2016, <http://bit.ly/2UqkGmX>.
- 14** L. Quinn et al., "Pesticide Use in South Africa: One of the largest importers of pesticides in Africa", 2011, <https://ogy.de/8y7v>.
- 15** FAOSTAT, Pesticide Trade, <https://ogy.de/4a0d> (last accessed February 2020).
- 16** Authors' own calculation on the basis of data provided by the South African Revenue Service (SARS) at the request of the authors. Data last accessed: December 2019.
- 17** Ken Research, "South Africa Crop Protection Market is Expected to Reach ZAR 6.8 Billion in Terms of Revenue by Year Ending 2022", 2018, <https://ogy.de/ne35>.
- 18** Information about Bayer and BASF products was provided by Agri-Intel at the request of the authors. Last updated: December 2019.
- 19** Bayer Southern Africa, "About Bayer in Africa", <https://ogy.de/y6r1>.
- 20** Authors' own inquiries.
- 21** CropLife South Africa, "Member-Distributor", <http://bit.ly/3cj06w3>.
- 22** Authors' interview with an agrochemicals trader.
- 23** Ken Research, "South Africa Crop Protection Market Outlook to 2022", 2019, <https://ogy.de/sxdj>.
- 24** ACB, "Submission to the South African Competition Commission on Bayer-Monsanto Merger", 2017, <https://ogy.de/cj3z>.
- 25** European Chemicals Agency, "Report on Exports and Imports in 2018 of Chemicals listed in Annex I to the Prior Informed Consent Regulation", 2019.
- 26** See the EU Pesticide Database, <https://ogy.de/3eeq>.
- 27** According to the PAN Pesticides Database, 497 active ingredients are approved in South Africa. Last accessed: January 2020.
- 28** Oxfam Deutschland, "Pestizide in Südafrika: Wein-Arbeiter*innen wehren sich mit Unterschriften aus Deutschland", 2019, <https://ogy.de/j7om>.
- 29** L. Quinn et al., "Pesticide Use in South Africa: One of the largest importers of pesticides in Africa", 2011, <https://ogy.de/8y7v> and Department of Agriculture, Forestry and Fisheries, "Pesticide Policy for South Africa", *Government Gazette*, 2010, <http://bit.ly/2w7CBHc>.
- 30** T.M. Ansara-Ross et al., "Pesticides in South African fresh waters", *African Journal of Aquatic Science*, 2012, <https://ogy.de/918e>.
- 31** See e.g. Human Rights Watch, "Ripe with Abuse: Human Rights Conditions in South Africa's Fruit and Wine Industries", 2011, <http://bit.ly/38WHlwG>, and S. Ferrer and M. Visser, "Farm Workers' Living and Working Conditions in South Africa: Key trends, emergent issues and underlying and structural problems", 2015, <http://bit.ly/3b1dZP1>.
- 32** S. Devereux et al., "The farmer doesn't recognise who makes him rich": Understanding the labour conditions of women farm workers in the Western Cape and the Northern Cape, South Africa", 2017, <http://bit.ly/3d78Zdo>.
- 33** L. London, "Human Rights, Environmental Justice and the Health of Farm Workers in South Africa", 2003.
- 34** The Sustainability Initiative of South Africa (SIZA) is an organization that aims to support South African farmers in complying with certain labour and environmental standards. To this end, SIZA has developed its own standard and an audit. SIZA bases its work on the international GlobalGAP standard, among others. More information via: <https://siza.co.za> and <https://www.globalgap.org/de/>.
- 35** For these investigations, the farms Nuwelande, Hillside, and Panzi were visited several times between March 2019 and February 2020. In each case, statements made by workers were verified with another group of workers. They remain anonymous for reasons of security.
- 36** BASF, "DASH: Safety data sheet", 2012, <http://bit.ly/33qRT5T>.
- 37** For these investigations, the farms Nuwelande, Hillside, and Panzi were visited several times between March 2019 and February 2020. In each case, statements made by workers were verified with another group of workers. They remain anonymous for reasons of security.
- 38** The name has been changed by the authors.
- 39** For these investigations, the farms Nuwelande, Hillside, and Panzi were visited several times between March 2019 and February 2020. In each case, statements made by workers were verified with another group of workers. They remain anonymous for reasons of security.
- 40** Associação Brasileira de Defensivos Genéricos, "Empresas agroquímicas: recuperação do mercado brasileiro levou ao crescimento geral das vendas", 2019, <https://ogy.de/soq>.
- 41** Instituto Brasileiro de Geografia e Estatística, "Pesquisa Agrícola Municipal", 2019, <https://ogy.de/am0i>.
- 42** Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis, "Relatórios de comercialização de agrotóxicos", 2019, <https://ogy.de/lv2r>.
- 43** Enquiries by the authors on the basis of the Brazilian government gazette and the EU Pesticide Database.
- 44** L. Ghiotto and J. Echaide, "Analysis of the agreement between the European Union and the Mercosur", 2019, <http://bit.ly/2xErVou>.
- 45** G. Teixeira, "Agrotóxicos: Posição na União Europeias Ingredientes Ativos liberados no Brasil", 2019, <http://bit.ly/2QqneAp>.
- 46** L.M. Bombardi, "Geografia do Uso de Agrotóxicos no Brasil e Conexões com a União Europeia", 2017.
- 47** Enquiries by the authors.
- 48** SINDIVEG, "Posicionamento sobre o Projeto de Lei 6.299/2002", 2019.
- 49** Posicionamento do Instituto Nacional de Câncer José Alencar Gomes da Silva acerca dos agrotóxicos (INCA Statement on Pesticides), 2015, <http://bit.ly/2QnZJJe>.
- 50** Ministério da Saúde, "Relatório Nacional de Vigilância em Saúde de Populações Expostas a Agrotóxicos", 2018, <http://bit.ly/2Uu9o1d>.
- 51** Human Rights Watch, "Você não quer mais respirar veneno: As falhas do Brasil na proteção de comunidades rurais expostas à dispersão de agrotóxicos", 2018 <http://bit.ly/3b3znmD>.
- 52** They are the descendents of Afro-Brazilian slaves, who until abolition in 1888 mostly were forced to work on plantations.

53 L. Barbosa, “O calvário das crianças Guarani Kaiowá contaminadas por agrotóxicos”, 2019, <https://ogy.de/e1gm>.

54 CIMI, “Agrotóxicos despejados perto de aldeia levam crianças e jovens Guarani Kaiowá ao hospital”, 2019, <https://ogy.de/lhmm>.

55 Interview with Erleide Domingues, published in L. Barbosa, “O calvário das crianças Guarani Kaiowá contaminadas por agrotóxicos”, 2019, <https://ogy.de/e1gm>.

56 Por trás do alimento, “Você bebe agrotóxicos? Descubra se a água da sua torneira foi contaminada, de acordo com dados do Sisagua”, 2019, <https://ogy.de/byog>.

57 See EU Pesticide Database, <https://ogy.de/dckv>.

58 Cimi, “Sentença inédita determina indenização de R\$ 150 mil à comunidade indígena vítima de aplicação irregular de agrotóxico”, 2019, <http://bit.ly/3ajldg>.

59 Bayer AG, “Höhere Maßstäbe bei Transparenz und Nachhaltigkeit”, 2019, <https://ogy.de/2map>.

60 E-Mail from Bayer to Association of Ethical Shareholders Germany, 31 January 2020.

61 BASF, “Nachhaltigkeit—Die Landwirtschaft voranbringen—Der wichtigste Beruf auf der Erde”, <https://ogy.de/2q9i> (last accessed: January 2020).

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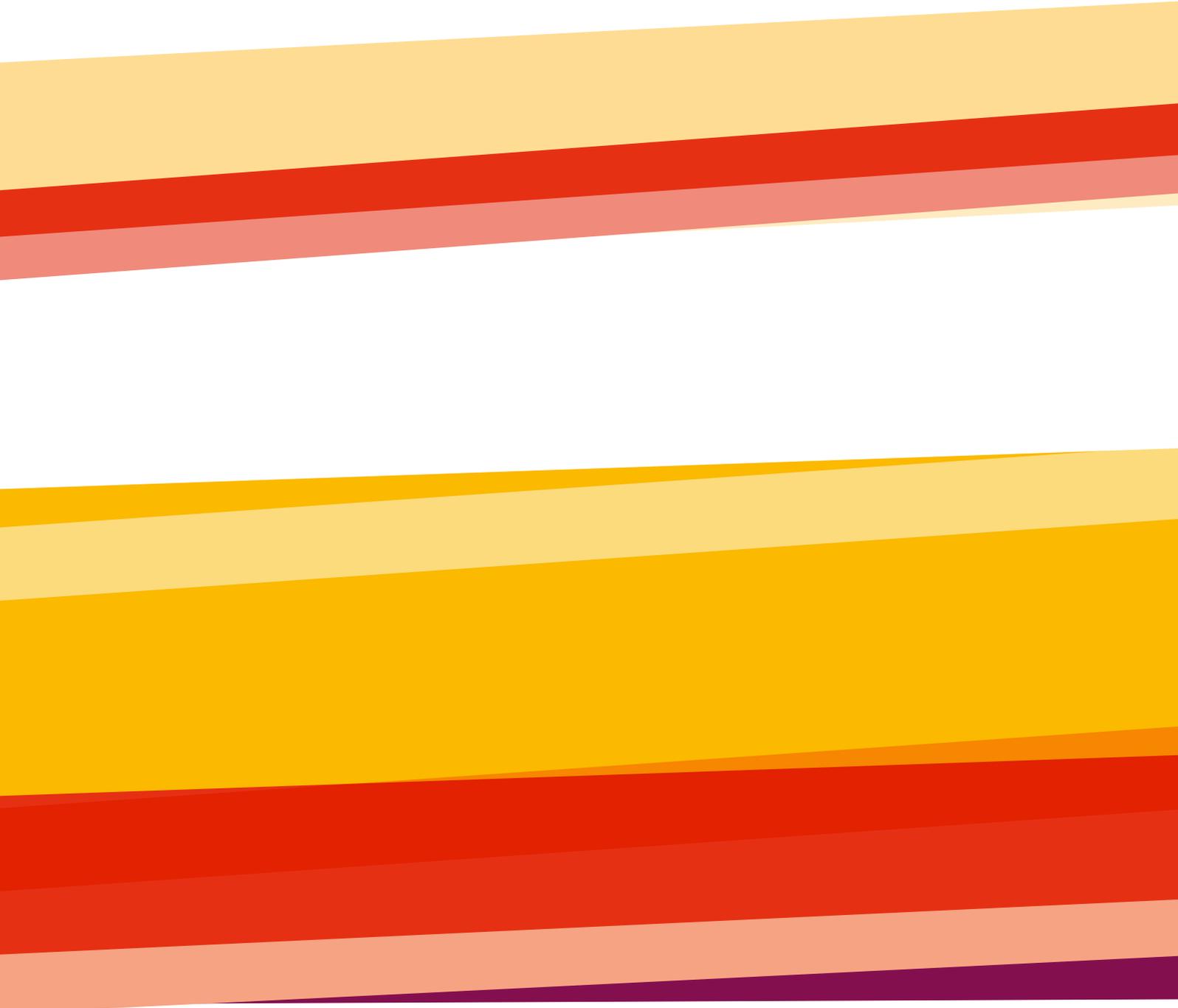
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