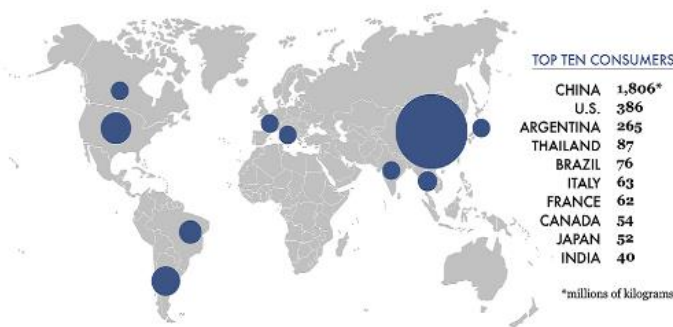


9 FAQ about pesticides

1 What is glyphosate and why should I be concerned?

ANNUAL PESTICIDE CONSUMPTION WORLDWIDE
LATEST DATA (2007-12)

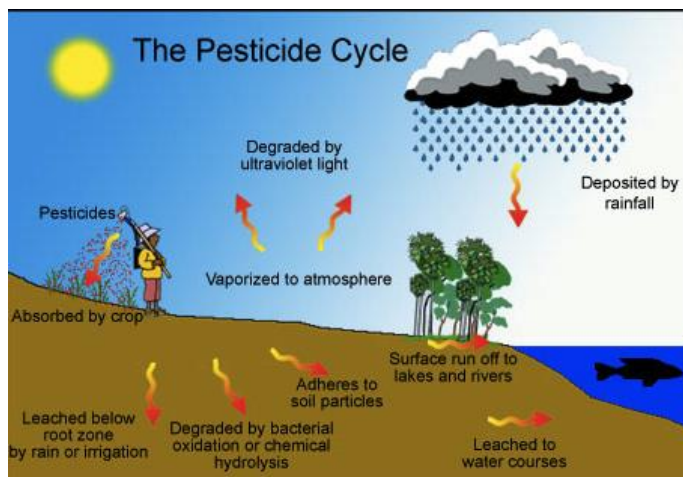


Sources: Pretty and Bharucha, *Insects*, 2015, FAOSTAT, OECD.

Glyphosate is the active principle of the main herbicides used in agriculture. Since 1974 in the U.S., [over 1.6 billion kilograms](#) of glyphosate active ingredient have been used or 19% of estimated global use of glyphosate (8.6 billion kilograms). Globally, glyphosate use has risen almost [15-fold](#) since so-called “Roundup Ready,” genetically engineered glyphosate-tolerant crops were introduced in 1996. a US EPA [report](#) of 2011 estimates world pesticide amount used in 2006 and 2007 to be approximately 5.2 billion pounds. According to [Enserink et al. study](#) of 2013, Europe is the world’s largest pesticide consumer.

[Learn more about glyphosate herbicide in the world](#)

2 Herbicides are used on the crop stage to target weeds and they don’t affect our food. Is it correct?



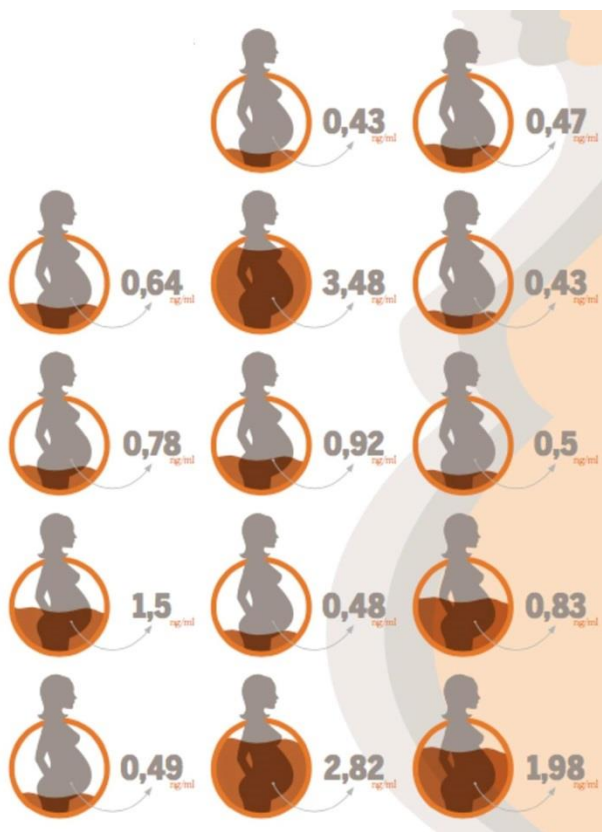
It is not. Indeed, [pesticides may persist in soils for years](#), and can gradually disperse through different routes over long distances, leading to contamination of non-directly exposed environments such as water resources, the deep sea, or mountain peak regions. As a consequence, our planet is permeated by these compounds, with unknown consequences for environmental quality and human health. Regarding environmental contamination, only a tiny part of the sprayed amount of pesticides reaches the target organism (weeds, insects, fungi, bacteria), while the rest ends up in the soil or on the crops from where pesticides can leak to other environmental sectors or enter the food

chain. [Learn more about pesticides contamination](#)

As Professor [Violette Geissen](#) argues “we don’t know exactly how much ends up in our atmosphere or how pesticide compounds affect surface water, aquatic life or human health. More than 60 percent of topsoils in the EU contain pesticide residue, [45 percent of which tested positive for glyphosate and its metabolites](#)” ([Video](#)).

Graphics: nile.riverawarenesskit.org

3 How much does glyphosate affect our food, our environment, our health?



The latest [UN Special Rapporteur](#) for the Right to Food points to [research](#) showing that pesticides are responsible for an estimated 200,000 acute poisoning deaths each year. It's presence in food for human consumption and animal feed is ubiquitous. Epidemiological studies have revealed a strong correlation between the increasing incidence of a [large number of chronic diseases](#).

These substances act as [endocrine disruptors](#). Prolonged exposure is related to the occurrence of cancer – in particular [Non-Hodgkin Lymphoma](#), [Alzheimer's](#), [Parkinson's](#), [kidney and liver diseases](#), [hormonal disorders](#), growth and learning problems in [infants and children](#), male and female [infertility](#), genotoxicity, including [neurological disorders](#) such as memory loss, visual impairment and/or motor coordination, loss of balance, dizziness. Other possible effects arising from exposure are the onset of [asthma and allergies](#).

Farmers, agricultural workers, communities living near plantations, indigenous communities, [pregnant women](#) and children are particularly vulnerable to pesticide exposure. [In a recent case sick Employees of](#)

[Transgenic Companies Report their Cases to the Government of Puerto Rico](#).

Human exposure is [widespread and constantly recurring](#):

- [Roundup's Toxic Chemical Glyphosate was found in 100% of California Wines Tested](#). Glyphosate usage is widespread that it is now showing up even in foods that haven't been directly sprayed, namely the grapes used to make organic wine.
- In 2016 in Germany, traces of glyphosate was [found](#) in 14 of the most widely popular brands of beer, with levels ranging from 0.46 to 29, 74 microgram per liter.
- [14 pregnant women in Italy were tested positive for glyphosate in urine](#), despite their being very careful on the quality of the food they ate.
- Glyphosate was [detected](#) in 44% of the 180 urine samples taken from European citizens in 18 countries.
- Glyphosate traces were [found](#) in the urine of 48 MEPs from 13 different EU countries voluntarily participating in a popular test. All the traces were 17 times higher than the EU drinking water norm (0.1 microgram/litre).

Graphics: Il Test Salvagente

4 But isn't the quantity of these chemicals spread in the environment under the legally determined safe levels ?



As Andre Leu, President of IFOAM, in the “[Myth of Safe Pesticides](#)” states: “Until the use of pesticides is regulated on the basis of current, published, peer reviewed science, there is no scientific basis on which to base the belief that the residue levels in our food and environment are safe”.

“Good agricultural practices” are not enough to assure consumers about the residues of numerous toxic pesticide in food, contrary to what both industry and government are now promoting. Major international studies – such as the US [President’s Cancer Panel 2010 report](#),

the [IAASTD report](#), [State of Science of Endocrine Disrupting Chemicals 2012](#), United Nations Environmental Program, [The United Nations Millenium Ecosystem Assessment Synthesis report](#), and many other published studies by scientific researchers have raised the issue of agricultural chemicals as significant contributors to negative global environmental change and adverse human health due to persistent and short term environmental toxicants. The body of science showing that agricultural chemicals are responsible for declines in biodiversity along with environmental and health problems continues to grow.

Video: [El costo humano de los agrotóxicos – por Pablo Ernesto Piovano \(Subtitulado: inglés\)](#) from [Pablo Ernesto Piovano](#) on [Vimeo](#).

5 Pesticides are indeed dangerous but are they needed to increase production in order to feed the world?



UN experts have asserted that it is a ‘myth’ that pesticides are necessary to feed the world. “Excessive use of pesticides is very dangerous to human health, to the environment and it is misleading to claim these are vital to ensuring food security,” the [Special Rapporteur](#) on the right to food, Hilal Elver, and the Special Rapporteur on Toxics, Baskut Tuncak, [said](#) in a joint statement to the Human Rights Council in Geneva on 7 march 2017. The Crop Protection Association, a lobbying group representing the \$50-billion agri-chemical industry, [fired back at the report](#) with its standard false claim that pesticides “play a key role in ensuring we have access to a healthy, safe, affordable and reliable food supply.” But Elver reaffirmed in an interview with [the Guardian](#): “It is a myth. Using more pesticides has nothing to do with getting rid of hunger. According to the UN Food and Agriculture Organization (FAO), we are [able to feed 9 billion people](#) today. Production is definitely increasing, but the problem is poverty, inequality and distribution.”

Globally, small farms [produce 70% of the food](#) we eat using 25% of the land, while industrial farms – according to the FAO [International Technical Conference on Plant Genetic Resources](#) in Leipzig (1995) – produce only 30% food, using 75% of the land, destroying 75% of the soil, water, biodiversity, while emitting 50% of the Green house gases that are polluting the atmosphere and destabilising the climate system. Industrial agriculture produces [commodities](#), not food. [90% of corn and soya](#) grown in the world go for Biofuel and animal feed. The [costs of production](#) in chemical, industrial agriculture systems is higher than the value of the output. Without giant subsidies they cannot survive.

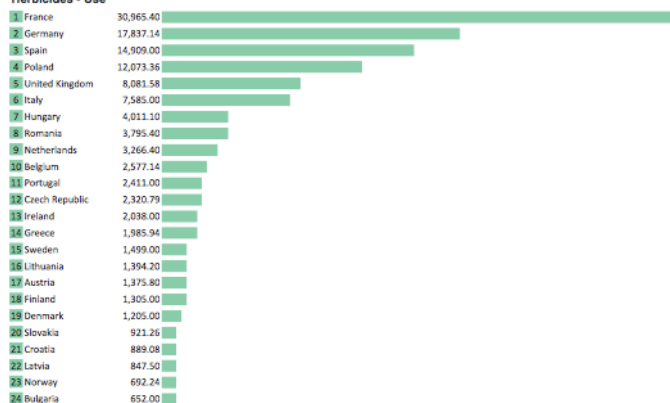
All the scientific evidence is showing that small farms are more productive than large farms.

- The International Assessment of Agriculture Knowledge , Science and Technology ([IAASTD](#)) has clearly shown that small agroecological farmers are more productive-
- The [UNCTAD Trade and Environment Review 2013](#) Titled “Wake Up Before it is Too Late” stresses that a paradigm shift is needed from chemical intensification to ecological intensification .
- The [United Nations Environment Programme in “Preventing Future Famines”](#) shows how small ecological farms enhance productivity through ecological functions.
- [Lancet](#) , the leading medical journal has recognized that only [small farms](#) have diversity , and diversity is vital for health.
- Navdanya’s report on [Biodiversity Based Productivity](#) and [Health per Acre](#) shows that small biodiverse farms produce more food and more nutrition than chemical monocultures.

Graphics: [agoraenterprises.org](#)

6 What about regulations? Can the European precautionary principle be used to protect consumers and workers?

Europe stat
Herbicides - Use



The application of the precautionary principle is hampered by both lack of political will,¹ as well as the wide range of interpretations placed on it. [One study](#) identified 14 different formulations of the principle in treaties and nontreaty declarations. One of the difficulties of the application of the principle in modern policy-making is that there is often an irreducible conflict between different interests, so that the debate necessarily involves politics.

In a recent study “[Towards a better pesticide policy for the European Union](#)”, scientists argue

the weaknesses of the current pesticide environmental risk assessment procedures. Pesticide policy is heavily criticized for being [relatively inefficient](#). For example, a pesticide ban does not necessarily mean that the pesticide is totally off the market. According to [Pesticides Action Network](#), exceptional authorizations for special uses of banned pesticides [have increased five-fold within four years](#) (2006-2010). With 74 banned pesticides getting exceptional authorization for special uses, France was nominated the ‘European backdoor champion’ in 2010 – followed by Greece (54), Portugal (31), and Germany (24). All over Europe, the level of pesticide contamination has not substantially diminished despite the efforts of different Member States to reach the objectives of relevant directives like the [EU-Water Framework Directive 2000/60/EC](#) and of the [EU-Directive 2009/128/ EC](#) for sustainable use of pesticides. Unfortunately also the post-authorization evaluation of pesticide impacts is weak. This is particularly the case for the description of pesticide degradation processes in soils. This point of view is shared by the European Environment Agency (EEA) that, on the basis of historical case studies, underlines that [early warnings were ignored or sidelined](#) until damage to health and the environment was inevitable.

7 So we cannot trust 100% the work of regulation agencies?

What is RoundUp?
Roundup is a highly toxic herbicide made by Monsanto. The active ingredient in Roundup is Glyphosate. Roundup sales around the world are approximated at **US\$6 Billion annually** and projected to be worth US\$ 8.79 Billion by 2019 due to demand created by the company's proprietary **Roundup Ready** genetically modified crops. The sole purpose of these Roundup Ready crops is to drive up sales of Roundup.

RoundUp Kills Pollinators
"The population of monarchs that completes the North American migration and spends winter in Mexico has declined by more than 90 percent."
National Resources Defense Council

Federal approval of the key ingredient in Monsanto's Roundup has caused the monarch butterfly population to plummet 90 percent since 1997.
<http://www.usdoj.gov/eolaw/docs/2015/05/22/monarchbutterflylinkchangeofmonarchbutterflylink.html>

RoundUp Runoff is Destroying the Oceans
RoundUp goes hand-in-hand with chemical fertilizers and GM crops. The combination leaches into ground water and eventually finding its way to oceans - creating **Dead-Zones**.
There's even an ugly named variant of Glyphosate called **Dead-Zone**.

RoundUp Destroys the Soil
RoundUp destroys all life in the soil. It kills all microbes that would typically help in plant growth - by providing nutrients and protect the plants from diseases. RoundUp triggers over 40 plant diseases.
<http://www.responsibletechnology.org/monoculture-monsanto-roundup-triggers-over-40-plant-diseases>

RoundUp and GM crops are a recipe for disaster
Genetically modified crops do not have greater yield nor do they have greater nutrition. Those traits come from the plant that Roundup Resistance and Bt-toxin traits and forced into. All GM crops do is allow for unrestricted use of Roundup rendering the soil dead, devastating biodiversity and causing death and diseases in plants, animals and human beings. It is not in the interest of Monsanto to feed the world or reduce the use of Roundup.

For the sowing season of 2010, in the US, Monsanto reduced the price of Roundup by 50%. The price decrease coupled with restructuring of the product value proposition resulted in an increase of gross profit by 46% in 2010 due to increased volume. Did the US obtain more farmland or did Monsanto force farmers to use almost 3 times the Roundup that was used in 2009? In India, Monsanto's net sales of Roundup for Financial Year 2013-14 were ₹208.89 crores, up by ₹69.86 crores (50%) over the Financial Year 2012-13 net sales of ₹139.03 crores. This increase, according to Monsanto is due to higher volumes. Reducing chemical use doesn't seem to be a priority for Monsanto.
<http://www.enrjournal.com/story/2015/05/monsanto-the-global-glyphosate-market-case-study/>

RoundUp is dangerous!

CANCER
Exposure to Glyphosate has been shown to cause **tumours of the mammary glands in rats**. The International Agency for Research on Cancer has linked Glyphosate exposure to cancer. Roundup is many times more toxic than Glyphosate alone.
<http://www.breitbart.com/articles/monsanto-cancer-151517-2015/05/23/154-804840>

KIDNEY FAILURE
On the island of Sri Lanka, 20,000 people have died due to kidney failure attributed to Glyphosate exposure.
<http://www.breitbart.com/articles/monsanto-cancer-151517-2015/05/23/154-804840>

BIRTH DEFECTS
<http://www.responsibletechnology.org/monsanto-roundup-triggers-over-40-plant-diseases>
Argentina has seen a rise in birth defects, cancers, kidney failures, infertility and various other diseases in an otherwise healthy people due to unchecked use of Roundup.

DISRUPTS ENDOCRINE SYSTEM
The Endocrine system regulates metabolism, growth and development, tissue function, sexual function, reproduction, sleep, and mood, among other things. Glyphosate alone wreaks havoc on the endocrine system at levels permitted for drinking water. Roundup is even more toxic at the same concentration levels.
<http://www.responsibletechnology.org/monsanto-roundup-triggers-over-40-plant-diseases>

RoundUp DAMAGES DNA
Minimal exposure by inhalation of Glyphosate - even at 450 times less concentration than that used for spraying - damages DNA in the cells.
<http://www.responsibletechnology.org/monsanto-roundup-triggers-over-40-plant-diseases>

AUTISM AND ADULT ONSET ALZHEIMER'S DISEASE
At today's rate, by 2025, half of US children will be autistic. Roundup usage is rampant in countries like the US where GM crops have taken over the farm systems. The original patent on Glyphosate was given for its chelation properties. Glyphosate chelates useful micronutrients leading to Autism and Alzheimer's Disease.
<http://www.responsibletechnology.org/monsanto-roundup-triggers-over-40-plant-diseases>

Compiled by Navdanya
www.navdanya.org www.soonoffthefarm.info
NAVANYA

Institutional risk assessment procedures are [highly criticized by independent scientists](#) as most of the times evaluations are based on the single active principle, without considering the so-called “[cocktail effect](#)”. The definition of “safe level” is controversial. Several independent studies underline the fact that [exposure can be episodic but repetitive](#) and to more than one substance at the same time.

Moreover the work of regulatory agencies has to be constantly reviewed as there is a strong risk of conflict of interest. For example, industry-funded research has long found RoundUp (glyphosate based Monsanto's flagship product) to be relatively safe.

A case in federal court in San Francisco challenged that conclusion, building on the [findings of the International Agency for Research on Cancer](#) (IARC) of the World Health Organization (WHO) which declared it “Probably carcinogenic to humans”. Court documents included Monsanto's internal emails between the company and the [Environmental Protection Agency](#) (EPA) Records suggested that Monsanto had ghostwritten research that was later attributed to academics and indicated that an EPA senior official had worked to quash a review of glyphosate. It also became

clear that Monsanto was aware of the genotoxicity of glyphosate [since 1984](#). [Monsanto's “War on Science”](#) has been exposed in an extensive [investigation](#) published [by Le Monde](#).

In Europe the glyphosate risk assessments released by the [European Food Safety Authority \(EFSA\)](#) and the [European Chemical Agency \(ECHA\)](#), which declared that glyphosate is not a human carcinogen, have been [heavily criticised](#) by independent scientists, lawyers and NGOs. According to an [investigation](#) by [Corporate Europe Observatory](#) “almost 60 percent of EFSA's experts had direct and/or indirect financial interests with companies whose products the Authority was assessing” in 2013.

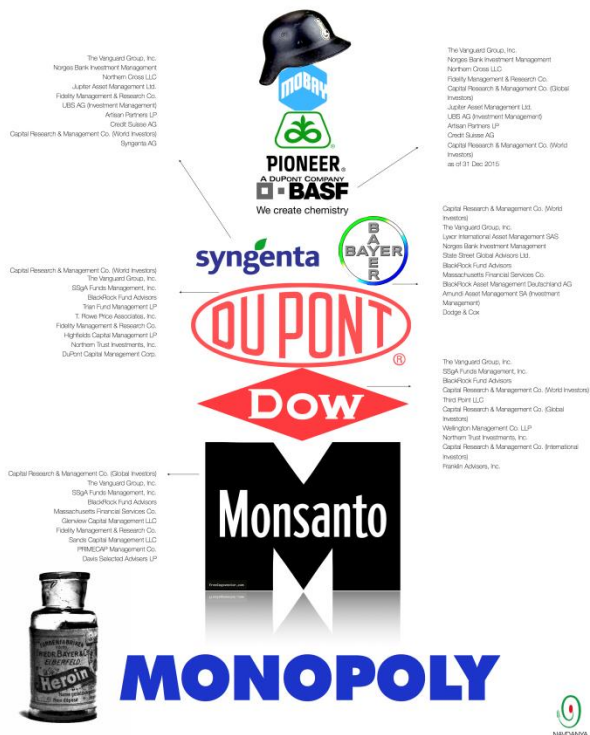
In response to the revelations that emerged in the “Monsanto Papers”, a cross-party [group of MEPs expressed their concern to the EU commission](#) about the studies being used in the EU assessment of the safety of glyphosate and requested a thorough investigation into these revelations. In September 2017, [Monsanto lobbyists were banned from entering the European parliament](#) after the multinational refused to attend a parliamentary hearing into allegations of regulatory interference. In October 2017, an ENVI / AGRI committees [debate](#) shed even more light on the actual concerns about loopholes, conflicts of interest, corporate interference and pressure, as well as gave a very clear picture of corporate strategic efforts to control, manipulate, and deceive, which have characterised the risk assessment analysis that led to the 18 months exemption of glyphosate authorisation in Europe in 2016.

The recent [UN Special Report](#) by the Special Rapporteur on the Right to Food, Hilal Elver, asserted that competent authorities must pay closer attention to the pressures of the agrochemical industry, in both the scientific and institutional fields.

Graphics: Navdanya

8 Which corporations are ruling the pesticides market?

Poison Cartel.Toxic Capital.



The pesticides market is controlled by [a handful of agrichemical corporations](#): Bayer CropScience, Monsanto, BASF, Syngenta, ChemChina, Dow AgroSciences and DuPont, which are aiming at decreasing in number through mergers, such as Dow Chemical – which bought up Union Carbide responsible for the [Bhopal disaster](#) killing over 20,000 people – now merging with Dupont ([130 billion dollar deal](#)), Syngenta merging with ChemChina ([43 billion dollar deal](#)), and [Bayer](#) merging with [Monsanto](#) ([57 billion dollar deal](#)).

[The European Commission has recently opened an in-depth investigation](#) to assess the proposed acquisition of Monsanto by Bayer under the EU Merger Regulation. The Commission has concerns that the merger may reduce competition in areas such as pesticides, seeds and traits and has until 8 January 2018, to take a decision. [These mergers](#) would exacerbate the problems caused by industrial farming – with still further negative consequences for the public, farmers and farm workers, consumers, the environment, and food security. Should all these mergers be approved by EU and US regulators, **just three companies will be left in control of 60 per cent of the world's seeds and 70 per cent of its chemicals**

and pesticides.

This concentration of power represents a “[Poison Cartel](#)” in a market based on “Toxic Capital” where business giants put pressure on governments and institutions to undermine any regulation aimed at protecting people’s health and the environment, and that would affect their profits.

In September 2017 Navdanya launched the Report “[TheToxic Story of RoundUp: Freedom from the Poison Cartel through Agroecology](#)”, which describes the origins and growth of the Poison Cartel and the ways in which these giant agri-business companies gain and keep control of their empires, among other things, in collusion with governmental agencies.

Graphics: Navdanya

9 What can civil society do to make governments and corporations accountable ?



Worldwide, civil society is mobilizing against the use of agrotoxic agents promoted by the Poison Cartel. One such major international mobilization was the holding of a people's tribunal, the [Monsanto Tribunal](#) in the Hague where witnesses, experts and lawyers denounced environmental and social damages directly caused by Monsanto, especially in relation to the impact of glyphosate based Round-Up on health and the environment. The [Advisory Legal Opinion](#) of the Judges, issued on 18 April 2017, confirmed that Monsanto's activities undermine basic human rights, victims of multinational corporations need better protective regulations and international courts should recognize ecocide as a crime.

– In Europe, citizens have used a relatively recent democracy tool: the ECI – [European Citizens Initiative](#), which allows a formal invitation to the European Commission to submit a legislative act in one of the areas of EU competence. In less than five months, more than one million [EU citizens have joined the ECI](#) to revoke the authorization of glyphosate use in all member states and to reform procedures for the approval of pesticides in Europe. This is not a “binding” instrument, but the European Commission is obliged to respond and thus also to give political insight to the subject.

– Movements across the world are taking action in order to protect health and environment against the policies and violence of the Poison Cartel. In [2014 Sri Lanka](#) was the first state that banned glyphosate after the publication of one [study](#) on the correlation between the use of pesticides based glyphosate and Chronic Interstitial Nephritis in Agricultural Communities-CINAC. In 2013 also [El Salvador](#) approved the amendment of a Law which allows the prohibition of 53 [chemicals](#), including Paraquat, Glyphosate and Endosulfan. Environmental and scientific [movements](#) across Costa Rica are nowadays mobilizing a [national campaign to “detoxify”](#) communities and public places which are leading to many herbicides-free zones.

Photo: Manlio Masucci



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