

## UN Commission report promoting organics, critical of pesticides challenged as biased

The Guardian recently published a piece, [UN experts denounce 'myth' pesticides are necessary to feed the world](#), where they claim that pesticides are an unethical marketing ploy by chemical companies, that has led to disastrous consequences.

Strong claims require strong evidence. The authors of this report unfortunately do the discussion on pesticide use a disservice by relying so much on hyperbole from activist organisations rather than focusing on peer-reviewed sources.

There are valid discussions to be had about the inappropriate use of pesticides, especially in the developing world – but this type of rhetoric as displayed in the report and the Guardian piece, lacking a proper regard for evidence, does not help the situation of the farmers most in need of our help.

screen shot at 11:58 AM on 10/10/2016  
'UN experts' view or hyperbole?

Let's take a look at the report, and the perspectives of UN organisations on the topic. This report is published under the UN organisation that deals with human rights: [United Nations Office of the Human Rights High Commissioner](#).

Very similar to the observation I once made in the case of another publicized UN report – [Myth: UN Calls for Small-Scale Organic Farming](#) – is that the Human Rights Office might not be the first UN agency to turn to, should one be seeking for an organizational statement about the usefulness of an agricultural method. There are, however, three other UN agencies which deal with questions relevant to agriculture: the UN [Food and Agriculture Organization](#) (FAO), the [World Food Program](#) (WFP), and the [World Health Organization](#) (WHO).

If you look at FAO's view on pesticides, they refer to the 1992-founded arm of the organisation, called International Plant Protection Convention (IPPC), which deals with important questions on [Food Safety](#). They do not sound at all as dismissive about the need for pesticides.

First and foremost, they highlight what a great threat pests are to food security:

A range of pests of plants pose a greater threat to food security than ever before, thanks to changes in global trade that enable the pests to move further and faster than before, and to climate change which creates favourable conditions where they did not exist before. For some pests, management options exist to bring invasions under control, possibly even eradicating the pest. For many others, there may be no way to stem the invasion which can affect food security negatively.

There is also a lot of talk about the importance of proper management and the appropriate application of

pesticides at FAO, if you read the latest joint meeting of FAO and WHO meeting report on [Pesticide Management](#), from 2015. There is little talk there that would confirm the 'expert view' promoted in the Guardian piece – no talk of eradicating the use of pesticides, certainly, and a lot of talk of on-going FAO management courses and guidelines and how the information can best be spread in developing countries. The absence of any goal of getting rid of pesticides, would indeed be strange, if the Guardian piece accurately reflected the 'view of UN experts'. But the problem may be that the report mentioned by the Guardian does not come from agricultural experts of the UN. It comes from human rights experts and lawyers.

### **A maze of opinions in the place of evidence**

The arguments of a UN-arm not related to agriculture could certainly be well-founded as well, if they relied on sound evidence – say, on peer-reviewed studies on the risk-benefit ratios of pesticides. So what are the sources in the Human Rights [report](#)?

What stands out directly is the prominence of non-peer-reviewed sources. In fact, they source many activist organisations who clearly have an agenda to fight against pesticides: Pesticide Action Network, Beyond Pesticides, Friends of the Earth, and Greenpeace. They also cite blog articles, books, and several pieces of popular media – ironically, coming around in a short circle, they also use The Guardian as a source. This is a very suspiciously roundabout way of making what should be an evidence-based argument. If there were good evidence to abandon pesticides altogether, then the best way to make that argument would be to clearly present the most compelling evidence – not by obstructing the question by presenting as evidence the existence of pieces written by people and activist organisations who fervently *believe* there to be insurmountable problems with pesticides.

This is not a scientific report. It's writers are not experts in agriculture. They do not rely on solid scientific evidence in their conclusions. To quote the Entomologist (an insect scientist) who runs the page [Relax, I'm an Entomologist](#):

The sources are garbage and do not reflect any sort of scientific expertise. There are some decent cherry picked peer reviewed sources, but this alone should discredit the entire report. If I were grading this paper from one of my students, I'd have them completely redo it or simply fail them.

To describe the use of some of the more reliable sources cited, let's examine the case of pesticide poisonings. The report opens by citing yearly poisoning deaths from pesticides at 200,000 per year. Looking closer at the source of that number, however, one can trace it (via [a literature review](#), then another scientific [paper from 2003](#)) to a [WHO report from 1990](#). In other words, the statistics are at least 17 years old. Many of the sources in that report are from the 70s and the 80s. If this is an important argument, should we not have an idea how the situation might have changed in the last decades? The report also points out that in the case of many countries, 60-75% of those cases of poisoning are intentional. They are human tragedies brought upon by hardship, and the most extreme case of inappropriate use of a pesticide – not the result of a normal farming practice. Removing pesticides from

the picture completely is unlikely to improve the tragic circumstances which might drive someone to suicide, though their choice of method might be different.

### **Scientific references that do not actually back up the arguments they are supposed to support**

There are some references to scientific publications as well, though far fewer percentage that one would wish for. Digging deeper into those also quickly brings up problems. For one, they make the claim that pesticides do not protect from crop losses:

96. Despite their widespread use, chemical pesticides have not achieved reduction in crop losses in the last 40 years.[78]

Their reference 78 is to E.C. Oerke, [Crop losses due to pests](#), Journal of Agricultural Science (February 2006). What the article in fact presents, is a much more nuanced argument about continued crop losses despite pesticides, asserting in the same sentence that pesticides have, however, enabled greater crop productivity, and they argue for ecologically sound ways of using pesticides. What this means, is that even the rare hand-picked peer-reviewed source in the report does not back up their simplistic views on pesticides being unnecessary:

The increased use of pesticides since 1960 obviously has not resulted in a significant decrease of crop losses; however, in many regions they have enabled farmers to increase crop productivity considerably without losing an economically non-acceptable proportion of the crop to pests. The concept of the threshold-based application of pest control measures is associated with the acceptance of crop losses and may be used successfully for an economically and ecologically sound crop production.

In fact, that same paper estimates that the potential for crop losses, if pests were given free range, varies from about 50% in wheat to more than 80% in cotton all in all, and the reduction in yields without pesticides are estimated at 26–29% for soybean, wheat and cotton, and 31, 37 and 40% for maize, rice and potatoes. They [conclude](#):

an increase in crop productivity without adequate crop protection does not make sense, because an increase in attainable yields is often associated with an increased vulnerability to damage inflicted by pests.

The report also cites another report by International Panel of Experts on Sustainable Food Systems (IPES), which has many notable problems, excellently outlined by a Norwegian agronomist Øystein Heggdal over at Food and Farm Discussion Lab: Deconstructing How Environmental Groups Mislead on Organics.

The UN Human Rights [report](#) goes on to claim that biotech crops entrap farmers:

...genetically engineered crops may create a cycle of entrapment for farmers, with herbicide-tolerant crops eventually requiring more herbicides to fight pest resistance. Farmers using genetically engineered seed are obliged to buy the pesticides that go along with it, benefiting the pesticide industry without considering the economic burden on farmers or the cost to the environment.[79] Farmers' right to assess technologies such as genetically engineered crops and weigh these in the light of other possible alternatives has also been ignored under the assumptions of conventional economics.[80] Indeed some argue that the development of alternatives has been undermined by the emphasis on investment in genetically engineered technologies.[81]

For this argument, they cite a french activist organisation Pollinis 79; a scientific article 80 that surveyed farmers in Cuba, Guatemala, and Mexico, for which seeds they preferred to buy, concluding that farmers who didn't know much about biotechnology were more likely to choose traditional varieties; and an apparently unrelated scientific article [81](#) about gene drives and biotechnology, looking at questions such as eradicating disease-spreading mosquitos with GE-mosquitos, and discussing the regulation of biotech organisms.

The arguments are concerning, especially considering that GE crops have helped reduce harsher pesticides in the developing world, where safe pesticide handling is most at question. A study on the Impact of Genetically Modified Maize on Smallholder Risk in South Africa finds lower risk for farmers using biotech crops, and International Food Policy Research Institute makes the following [assessment](#):

Savings in terms of increased gross margins (114%), reduced pesticide costs (62–96%), beneficial human and environmental effects, and improved yields (18–29%) over conventional crops in the presence of pest pressure have been documented for small-scale African farmers growing commercial GM crops. This despite high variation among crops, time, and geographies.

The European Academies Science Advisory Council's (ESAC), in their report summary in *Planting the Future*, also highlights how the technology offers significant economic and health benefits at the farm level, particularly to smallholder farmers in developing countries, not least because of the associated decreases in pesticide use.

For perspectives of farmers in the developing world, you can read about a [brinjal-farmer in Bangladesh](#) or [a cotton-farmer in India](#), who speak about their switch to GE-brinjal and GE-cotton, and the resulting dramatic decrease in pesticide use on their farms. These trends have also been scientifically reported, here articles about these developments in China: [Widespread adoption of Bt cotton and insecticide decrease promotes biocontrol services](#), and India: [Bt cotton cuts pesticide poisoning](#).

Other aspects of the report are also discussed well in an article by Kevin Folta, [Anti-Ag U.N. Report Written by Attorneys Argues for Big Ag](#), where he avidly points out the contradictions in how the report argues against industrial agriculture, while illuminating the harm that occurs in small-scale farming in the

developing world, including child labour, and the inappropriate use of pesticides in inexperienced hands:

Over exposure, harm to the environment– these are NOT happening on large farms in the industrialized world. Misuse mostly occurs on small holder operations in the developing world.

Others have also pointed out the questionable use of the “Monsanto Tribunal” among the report’s sources – a meeting funded and organised by organic lobbyists and activists in a rented conference room in Hague, which they called a tribunal, for... more condemning media-value? You can read more about that [here](#).

### **The report undermines the real discussion of correct pest(icide) management**

This is very important – for there are real dangers with inappropriate use of pesticides, especially in the developing world. This is why FAO makes such a big deal about getting the information on proper pesticide management out to all farmers. Pesticides should only be used when absolutely necessary, and with adherence to proper safety protocols. [Integrated Pest Management](#) (IPM) helps take steps that reduce the need for pesticides. FAO highlights problems with small-scale farmers without knowledge and gear necessary for the safe handling of the more harmful types of pesticides, many which are largely restricted, or in the process of being phased out, among the farmers in the developed world. From a FAO [news piece](#):

Among international organizations, including FAO, the World Health Organization and the World Bank, there is consensus that highly hazardous products [such as organophosphates] should not be available to small scale farmers who lack knowledge and the proper sprayers, protective gear and storage facilities to manage such products appropriately.

Even for the highly hazardous pesticides, they consider a ban to be the last measure, if other approaches are not sufficient in ensuring safety. If you look at the latest [seminars](#) of the FAO arm of International Plant Protection Convention, they underline the goal of scientifically sound, appropriate use of pesticides, with the aim not to *increase* pesticide use. If all these experts thought pesticides were in fact unnecessary, they might have aimed for cessation – or hey, at least a reduction – of use. But they don’t.

screen shot at

Image not found or type unknown

A slide from the UN IPPC [Food Security seminar](#) on ISPMs (International Standards for Phytosanitary Methods). Goal: apply right pesticides at right time, avoid increase in pesticide use.

Even the sensationalist [Guardian piece](#) paradoxically prints a quote about the incredulity of the claim they broadcast in their headline. They quote a UK [Crop Protection Association](#) (perhaps hoping that since they speak for agricultural companies, people will automatically discount their words about science and the FAO?):

“The UN FAO is clear on this – without crop protection tools, farmers could lose as much as 80% of their harvests to damaging insects, weeds and plant disease.”

“The plant science industry strongly agrees with the UN special rapporteurs that the right to food must extend to every global citizen, and that all citizens have a right to food that has been produced in a way that is safe for human health and for the environment,” said the spokesman. “Pesticides play a key role in ensuring we have access to a healthy, safe, affordable and reliable food supply.”

The estimate of 80% loss does sound quite large, and while locally there may well be cases where this is true when a pest problem becomes very concentrated, I don't know if I would accept that number as the average figure (the [Oerke paper](#) has that as the uppermost loss estimate for cotton, only). Agricultural researchers do echo the sentiment about the vital part pesticides play in farming, quoting 35-40% estimated losses without the use of pesticides – as reported in an article in Phys.org, with the headline, [Why we need pesticides to feed the world](#)

:

Professor Kathleen Lewis, Professor of Agricultural Chemistry at University of Hertfordshire's Department of Human and Environmental Sciences (HES) and Research Leader for the Agriculture and Environment Research Unit (AERU), says the use of pesticides is imperative to that goal. And that their continued use is one of the only ways that farmers can ensure the wellbeing of local ecosystems and rural populations.

She said: 'Without pesticides it has been estimated that global food production could fall by as much as 35-40%, increasing the cost of food and threatening food security. However, their use does involve potential risks to human health so pesticide policies, particularly those of the developed world, advocate the sustainable use of these chemicals to minimise the risks and maximise the benefits.

'And as well as their primary use, pesticides also deliver other benefits such as reducing the labour, fuel and machinery required for crop protection activities which have a wider, positive impact on the environment.'

### **Improvements in farming are important – including improvements in pesticides use**

Pesticide regulation has [improved by leaps and bounds](#) in the developed world. Pesticides in use in the West today are far less harmful than those used even a few decades ago, in fact many common [household chemicals are more toxic](#). Some of the least toxic pesticides of all time have resulted in great reduction in harm for humans and non-target organisms as well as many other [environmental benefits](#).

getting safer using less

Image not found or type unknown

See the entire Science Magazine infographic for many other important data points

Using IPM, utilizing GE-crops that reduce the use of insecticides, moving to the use of the most effective and least harmful pesticides, we can improve the health of farmers as well as that of the environment. Herbicide tolerant crops, paired with the appropriate use of herbicides, have reduced erosion and run-off, and improved soil health, because they have enabled farmers to use the environmentally friendlier methods of no-till and conservation tillage in the US (see more in the piece by [USDA](#)).

To quote Debunking Denialism, these developments are unfortunately often undermined by the very organisations this UN Human Rights report relies so heavily upon. From [The Perils of Anti-Pesticide Hysteria](#):

Developing newer and safer pesticides, replacing older and more harmful pesticides, and deploying biotechnology to help plants resist pests should be a global agricultural priority. Yet in a cruel twist, these crucial solutions are often opposed by many anti-pesticide activists and other extreme environmentalists who push fear and misinformation about “chemicals” and genetically modified crops.

In fact, pesticides have an important role in mitigating the burden farming poses for the environment – for more on that, please read the excellent Food and Farm Discussion Lab piece, Focus on pesticides is a distraction from major eco impacts. We should help bring the whole farming world to the point of efficient use of resources, including the appropriate use of the least harmful pesticides, instead of demonising an



important and very varied method in the greater toolbox of farming.

A version of this article appeared at the blog Thoughtscapism as “[No, The UN Did Not Dismiss Pesticides as Unnecessary](#)” and has been republished here with permission from the author and the original publisher.

Iida Rushalme, Finnish by birth and now a Swedish resident, is a cell biologist and science communicator, and author of the [Thoughtscapism blog](#). You can follow her on Twitter at [@Thoughtscapism](#).