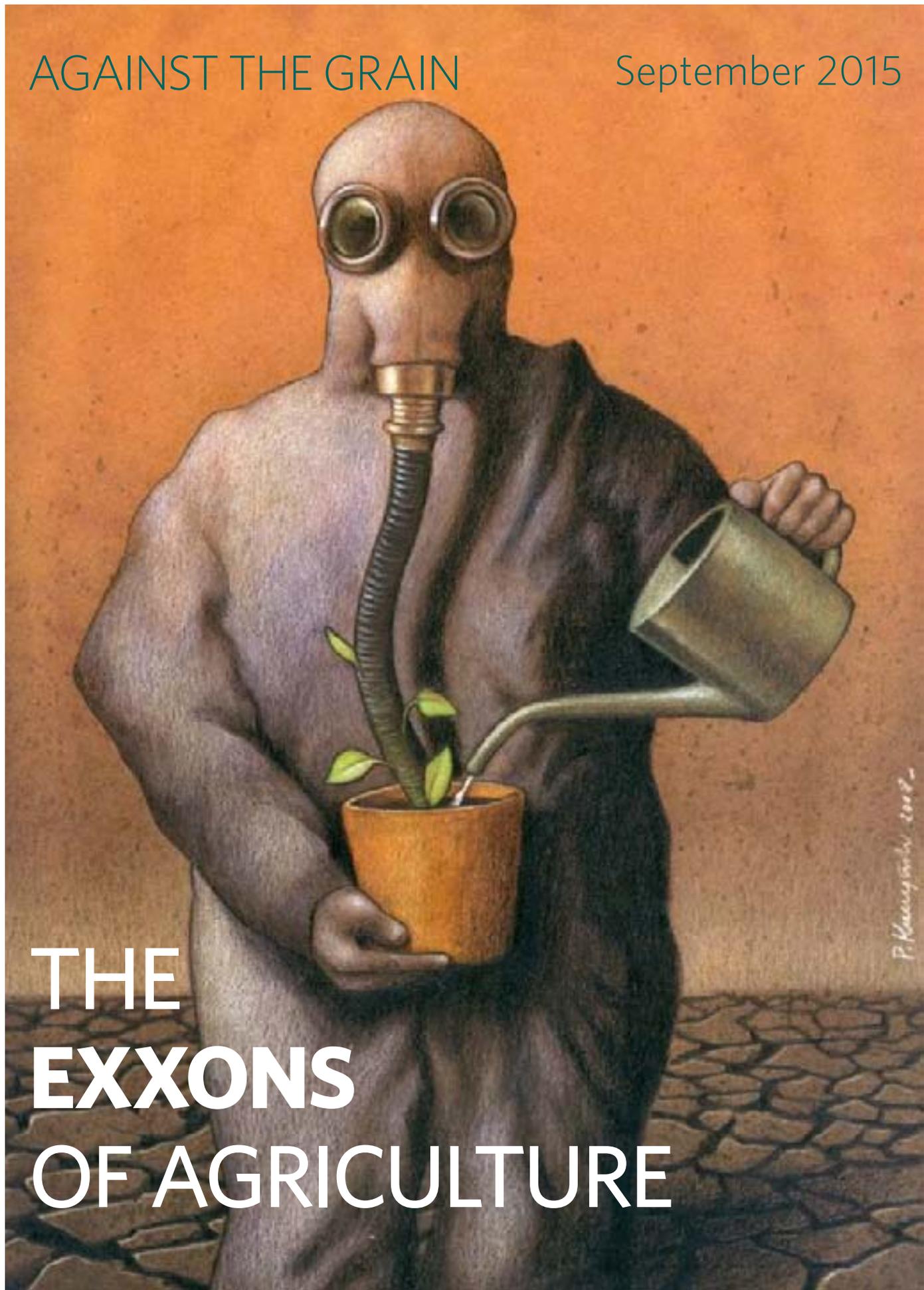


AGAINST THE GRAIN

September 2015



THE EXXONS OF AGRICULTURE

Illustration by Pawel Kuczynski (www.pawelkuczynski.com)



It goes without saying that oil and coal companies should not have a seat at the policy table for decisions on climate change. Their profits depend on business-as-usual and they'll do everything in their power to undermine meaningful action.

But what about fertiliser companies? They are essentially the oil companies of the food world: the products they get farmers to pump into the soil are the largest source of emissions from farming.¹ They, too, have their fortunes wrapped in agribusiness-as-usual and the expanded development of cheap sources of energy, like shale gas.

Exxon and BP must envy the ease their fertiliser counterparts have had in infiltrating the climate change policy arena. World leaders are about to converge for the 21st Conference of the Parties (COP21) in Paris in December, but there is only one major intergovernmental initiative that has emerged to deal with climate change and agriculture – and it is controlled by the world's largest fertiliser companies.

The Global Alliance for Climate Smart Agriculture, launched last year at the United Nations (UN) Summit on Climate Change in New York, is the culmination of several years of efforts by the fertiliser lobby to block meaningful action on agriculture and climate change. Of the Alliance's 29 non-governmental founding members, there are three fertiliser industry lobby groups, two of the world's largest fertiliser companies (Yara of Norway and Mosaic of the US), and a handful of organisations working directly with fertiliser companies on climate change programmes. Today, 60% of the private sector members of the Alliance still come from the fertiliser industry.²

Corporate smart agriculture

One possible explanation for the fertiliser industry's successful policy coup is that its role in climate change is poorly understood and severely underestimated. People associate Shell, not Yara, with fracking. But it is Yara that coordinates the corporate lobby for shale gas development in Europe, and it is Yara and other

1. See for example, GT Gustavo et al, "Energy use and greenhouse gas emissions from crop production using the Farm Energy Analysis Tool," *BioScience* (2013) 63 (4): 263-273: <http://bioscience.oxford-journals.org/content/63/4/263.full>

2. CIDSE, "Climate-smart revolution ... or green washing 2.0?," May 2015: <http://www.cidse.org/publications/just-food/food-and-climate/download>

fertiliser companies that suck up most of the natural gas produced by the fracking boom in the US.³

Fertilisers, especially nitrogen fertilisers, require an enormous amount of energy to produce. Estimates are that fertiliser production accounts for 1-2% of total global energy consumption and produces about the same share of global greenhouse gas (GHG) emissions.⁴ This production gets bigger every year. Supplies of nitrogen fertiliser, which is produced almost entirely from natural gas, are expected to grow nearly 4% per year over the next decade.⁵ And this production will increasingly rely

"The use of chemical fertilisers this year will likely generate more GHG emissions than the total emissions from all of the cars and trucks driven in the US."

on natural gas from fracked wells, which leak 40 to 60 percent more methane than conventional natural gas wells. (Methane is 25 times more potent than CO₂ as a greenhouse gas.)⁶

Production, however, accounts for only a small fraction of the GHG emissions generated by chemical fertilisers. Most emissions occur once they are applied to the soil.

3. US EIA, "New methanol and fertilizer plants to increase already-growing industrial natural gas use," July 2015: <http://www.eia.gov/todayinenergy/detail.cfm?id=22272&src=email>. On the shale gas lobby efforts, see: <http://shalegas-europe.eu/guest-blog-energy-and-europes-ability-to-create-an-industrial-renaissance-2/?lang=pl> and http://www.ifeceurope.org/fileadmin/Downloads/Gas/IFIEC_FE_shale_gas_position_paper_21_02_13.pdf

4. Estimates are from the IPCC. Note that the figures do not include the emissions associated with packaging and transporting fertiliser or the emissions associated with the machinery used to apply them on the farm. See BB Lin et al. "Effects of industrial agriculture on climate change and the mitigation potential of small-scale agro-ecological farms", *CAB Reviews: Perspectives in agriculture, veterinary science, nutrition and natural resources*, 2011 6, No. 20: <http://www.columbia.edu/~km2683/pdfs/Lin%20et%20al.%202011.pdf>

5. FAO, "World fertiliser trends and outlook to 2018", 2015: <http://www.fao.org/3/a-i4324e.pdf>

6. Mark Fischetti, "Fracking would emit large quantities of greenhouse gases," *Scientific American*, January 2012: <http://www.scientificamerican.com/article/fracking-would-emit-methane/>

The International Panel on Climate Change (IPCC) estimates that for every 100 kg of nitrogen fertiliser applied to the soil, one kg ends up in the atmosphere as nitrous oxide (N₂O), a gas that is 300 times more potent than CO₂ as a greenhouse gas and is the world's most significant ozone-depleting substance. In 2014, this was equivalent to the average annual emissions of 72 million cars driven in the US -- about a third of the US fleet of cars and trucks.⁷

New research, however, shows that these alarming numbers are at least three to five times too low. The use of chemical fertilisers this year will likely generate more GHG emissions than the total emissions from all of the cars and trucks driven in the US! (See box: The fertiliser footprint)

The fertiliser industry has long known that their chemicals are cooking the planet and there is a growing body of evidence that shows that their products are not needed to feed the world. Farmers can stop using chemical fertilisers without reducing yields by adopting agroecological practices.⁸ This was the conclusion supported by the 2008 International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD) -- a three-year intergovernmental process involving over 400 scientists that was sponsored by the World Bank and all of the relevant UN agencies.⁹

Faced with this dilemma, the fertiliser companies have moved aggressively to control the international debate on agriculture and climate change, and to position themselves as a necessary part of the solution.

Fronting for fertilisers

"There have been several organisations advocating at the international level for sustainable agriculture to be interpreted as synonymous with agro-ecology. However, agro-ecology has unfortunately come to represent principles which reject the use of farming inputs. Therefore, initiatives

7. Based on US EPA estimate of 4.7 metric tons of CO₂ per year for the average car driven in the US.

8. See for example, March 2015 study results from Universidad Politécnica de Madrid team showing a 57% reduction in GHG emissions and an 8% increase in yields when urea (nitrogen) fertilisers were removed. "Yield-scaled mitigation of ammonia emission from N fertilization: the Spanish case," Environmental Research Letters: <http://www.sciencedaily.com/releases/2015/03/150318074403.htm>

9. The full report of the IAASTD as well as summaries are available here: <http://www.globalagriculture.org/report-topics/climate-and-energy.html>

such as the Global Alliance for Climate Smart Agriculture are important to ensure the UN system adopts decisions that are reflective of modern agriculture."

Canadian Federation of Agriculture¹⁰

The global fertiliser industry is dominated by a handful of corporations. Yara, which is over 40% owned by the Norwegian government and its state pension fund, dominates the global market for nitrogen fertiliser, while US-based Mosaic and a few companies in Canada, Israel and the former Soviet Union operate cartels that control the global potash supply. Mosaic is also the leading producer of phosphates.

These companies are collectively represented by a number of lobby groups. The main ones at the global level are The Fertiliser Institute, the International Fertiliser Industry Association and the International Plant Nutrition Institute. Fertiliser companies are also represented by energy consumer lobby groups such as the International Federation of Industrial Energy Consumers. Yara chairs its Gas Working Party, which, in collaboration with Fertilisers Europe, is lobbying heavily for shale gas development in the European Union (EU).¹¹

The fertiliser companies and their front groups play an active role in various alliances that they have formed with other corporations from the food and agriculture sectors to define and protect their collective interests on policies related to the environment and climate change.¹²

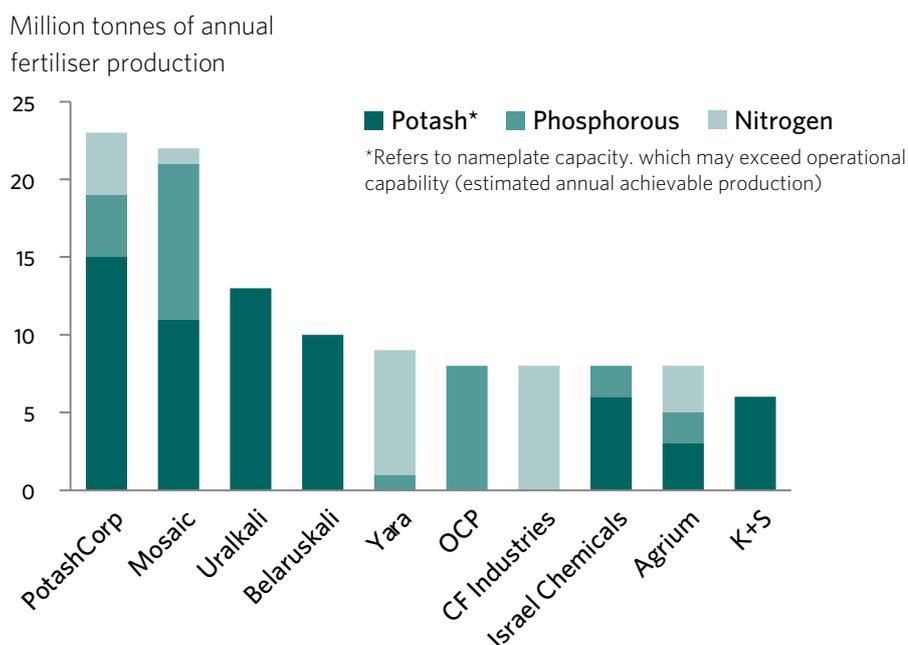
In North America, for instance, Yara and other fertiliser companies and lobby groups co-founded the Alliance for Sustainable Agriculture ("Field To Market") alongside other major food and agribusiness companies like Walmart, Kellogg's and Monsanto. Also active in this alliance are big US environmental non-governmental organisations (NGOs) such as the Environmental Defense Fund (EDF) and the The Nature Conservancy (TNC). These NGOs work directly with Yara, Mosaic and other fertiliser companies on "climate smart"

10. Two of CFA's six corporate members are Agrium (the world's 9th largest fertiliser company) and the Canadian Fertiliser Institute (the lobby group for the fertiliser industry in Canada and a member of the Global Alliance for Climate Smart Agriculture): <http://www.cfa-fca.ca/about-us/corporate-partners>

11. Position paper on shale gas - Ifiec Europe and Fertilizers Europe: http://www.ificEurope.org/fileadmin/Downloads/Gas/IFIEC_FE_shale_gas_position_paper_21_02_13.pdf

12. See, for example, the Cool Farm Initiative, which brings together Yara, Unilever, Costco, PepsiCo and the Sustainable Food Lab, another member of the Global Alliance for Climate Smart Agriculture: <http://www.coolfarmtool.org/>

Graphic 1. World's ten largest fertilizer companies



Source: Fertecon, CRU, Company Reports, PotashCorp

fertiliser efficiency programmes that Walmart, PepsiCo, Campbell's and other major food companies and retailers are using as a basis for their internal GHG emissions reduction plans (See box: Pollution as the solution).

The same NGOs and fertiliser front groups are behind Solutions from the Land, a US alliance of agribusiness corporations and corporate farmers established to defend industrial agriculture from environmental regulations, initially dealing with the destructive impacts on waterways from chemical fertiliser run-off and now focusing on climate change.

"We're scared to death we'll get hijacked by some groups that oppose technology," explains Solution from the Land's Fred Yoder, speaking in Abu Dhabi in March 2015 at an agribusiness forum on climate change.¹³

In early 2015, Solutions from the Land changed its name to the North American Alliance for Climate Smart Agriculture and now acts as the regional coordination for the Global Alliance for Climate Smart Agriculture.

This cosy relationship between the fertiliser industry and other multinationals of the food and agribusiness

13. Chris Clayton, "Talking climate-smart agriculture in Abu Dhabi", Progressive Farmer, 10 March 2015: http://www.dtnprogressivefarmer.com/dtnag/view/ag/printablePage.do?ID=BLOG_PRINTABLE_PAGE&bypassCache=true&pageLayout=v4&blogHandle=policy&blogEntryId=8a82c0bc49f2d3d3014c04da12fc1365&articleTitle=Talking+Climate+Smart+Agriculture+in+Abu+Dhabi+&editionName=DTNAgFreeSiteOnline

sector reaches beyond the US and Europe. Yara is particularly active within the World Economic Forum (WEF) where it co-chairs the development of its New Vision for Agriculture with Walmart. Yara also chairs the WEF's Climate Smart Agriculture working group, through which it coordinates the implementation of "climate smart" fertiliser programmes with Nestlé, PepsiCo, Syngenta and other companies in Asia and Africa.

Fertiliser companies also have a long-standing relationship with the international research centres of the Consultative Group for International Agricultural Research (CGIAR). Today, the fertiliser industry collaborates with these centres on various climate smart initiatives in the South (see box: Pollution as the solution).

The relationship extends to the Bill Gates-funded Alliance for a Green Revolution in Africa (AGRA) which has several areas of cooperation with the CGIAR and the fertiliser industry, such as the African Green Revolution Forum that was established by Yara and AGRA in 2010.

The main vehicle for the promotion of fertilisers in the South, however, is the International Fertiliser Development Center (IFDC), which was established in the US in the 1970s and is funded by several fertiliser companies, including Yara. IFDC lobbies governments for policies that increase fertiliser use and promotes different fertiliser application techniques, such as integrated soil management that AGRA, the World Bank and other funding agencies have embraced as "climate smart".

All of these various corporations, agencies, front groups and alliances have converged behind a common effort to promote "climate smart agriculture" as the official response to climate change. It builds upon previous, equally abstract terms promoted by the fertiliser industry to cast chemical fertilisers as part of the solution to climate change, such as "climate compatible agricultural growth" and "sustainable intensification".¹⁴

"I believe 2015 and 2016 will be the years where we move from building a global movement to action on the ground.

14. FOE International, "Wolf in sheep's clothing: An analysis of the 'sustainable intensification' of agriculture," 2013: <http://www.foei.org/wp-content/uploads/2013/12/Wolf-in-Sheep%E2%80%99s-Clothing-summary.pdf>

And the key words are climate smart agriculture, an area where Yara has products and knowledge," says Sean de Cleene, Vice President Global Initiatives, Strategy and Business Development in Yara.¹⁵

The UN's Food and Agriculture Organisation (FAO) first coined the term "climate smart agriculture" in 2010 as a means to attract climate finance to its agricultural programmes in Africa. The term only became significant in international policy circles in 2012 after the second Global Conference on Agriculture, Food Security and Climate Change, organised in Hanoi by the World Bank and FAO and hosted by the Government of Vietnam.

The choice of Vietnam was no accident. Yara and other food and agribusiness multinationals of the WEF had recently launched a major public-private partnership with the Vietnamese government under which these corporations were given exclusive responsibility over the "value chains" of the country's main export commodities. Yara was put in charge of coffee and vegetables, and the programmes in Vietnam were adopted as the WEF's first pilot project for climate smart agriculture, which Yara was tasked with overseeing.¹⁶

The programme of the Second Global Conference was dominated by Yara and the other corporations collaborating with the Vietnamese government. Civil society organisations were marginalised from the discussions, and their vocal rejection of the "climate smart agriculture" concept was ignored.¹⁷ While the previous conference had called for a "paradigm shift at all levels", this time the conference ended with a call for "a paradigm shift in the role of the private sector" to "institutionalise and scale-up" private

sector involvement and "move from public-private to private-public partnerships."¹⁸

By the time of the next Global Conference in South Africa a year later, the fertiliser lobby and its allies had produced a plan for the creation of an Alliance for Climate Smart Agriculture to be formally presented at the UN Climate Summit in September 2014 as the international community's main platform for action on climate change and agriculture.

The US State Department then took the lead in moving the plan forward. At the Alliance's "Partner Meeting" in The Hague in July 2014, where the final details were



Joergen Ole Haslestad, Chief Executive Officer of Yara International ASA, the world's largest producer of nitrogen fertiliser and member of the Steering Committee of the Global Alliance for Climate Smart Agriculture.

hammered out, the US sent five government officials, four representatives of US agribusiness lobby groups and four corporate representatives -- a number equal to the entire number of delegates from developing countries.¹⁹

"The international discussions were hijacked by agribusiness companies, the World Bank, the US and other climate smart agriculture-friendly governments," says World Food Prize winner Hans Herren. "They have the money and the lobby groups. Those of us defending agroecology, local food systems and small-scale farming as

15. Yara, "Pushing climate smart agriculture" Oslo, 16 March 2015: http://yara.com/media/news_archive/pushing_climate_smart_agriculture.aspx

16. See for example, Yara, "Tackling the coffee challenge in Vietnam", September 2014: http://yara.com/media/news_archive/tackling_the_coffee_challenge_in_vietnam.aspx

17. See the Civil Society Statement of Concern on the 2nd Global Conference on Agriculture, Food Security and Climate Change in Hanoi, Viet Nam, 3-7 September 2012: <http://www.northchick.org/conservation/agriculture-food-security-climate-change/>

18. The Hanoi Communiqué: <https://zoek.officielebekendmakingen.nl/blg-188179.pdf>

19. Christian Mersmann, "4th partner meeting of the Global alliance for climate smart agriculture", 14 July 2014: <https://www.donorplatform.org/cobalt/user-item/660-/3-climate%20change/2262-4th-partner-meeting-of-the-global-alliance-for-climate-smart-agriculture-acsa>

Graphic 2. How fertiliser companies control the Global Alliance for Climate Smart Agriculture



the holistic and truly climate friendly solution were simply pushed out of the process.”²⁰

Today the Global Alliance for Climate Smart Agriculture is stacked with fertiliser companies, fertiliser front groups and NGOs and companies that work directly with them (Graphic 2). Its steering committee includes Yara, Mosaic, EDF and TNC, as well as their home governments of Norway and the US.²¹

Back to a paradigm shift

Food and agriculture are low hanging fruits for action on climate change. Dramatic and rapid reductions in GHG emissions can be achieved in our food systems without major economic consequences. The elimination of chemical fertilisers is one of the easiest and most effective places to start.

Cutting out chemical fertilisers could reduce annual global greenhouse emissions by as much as 10% (See box: The fertiliser footprint). Additionally, the shift from chemical fertilisers to agroecological practices would allow farmers to rebuild organic matter in the world’s soils, and thus capture a possible two-thirds of the current excess CO₂ in the atmosphere within 50 years.²² There are also the added benefits of improved livelihoods for farmers, more nutritious foods, protection of the ozone layer and safe water systems.

No technical hurdles stand in the way. Fertiliser

companies may claim that if we stopped using their products we would have to plough up the earth’s remaining forests in order to meet global food needs, but there are plenty of studies showing that farmers using simple agroecological practices can produce as much food without chemical fertilisers on the same amount of land.

When it comes to global food security, we should be much more worried about our dependence on the cartels that the fertiliser companies operate. During the 2007 food price crisis, as a billion people starved because they could no longer afford food, the fertiliser companies jacked up their prices and held governments and farmers at ransom. They pointed to rising costs for raw materials (natural gas) but the profits of Yara and Mosaic jumped a staggering 100% that year.²³

Kicking the fertiliser habit is really a matter of politics. No meaningful action can occur until the fertiliser industry’s grip on policy makers is loosened. Let’s start making this happen by shutting down the Global Alliance for Climate Smart Agriculture and booting the fertiliser companies out of the COP21 in Paris.

20. Personal communication with GRAIN, July 2015.

21. CIDSE, “Climate-smart revolution ... or green washing 2.0?”, May 2015: <http://www.cidse.org/publications/just-food/food-and-climate/download>

22. GRAIN, “Earth matters - Tackling the climate crisis from the ground up,” 28 October 2009: <https://www.grain.org/e/735>

23. GRAIN, “Making a killing from hunger,” April 2008: <https://www.grain.org/e/178>

The fertiliser footprint

Scientists now know that the 17% increase of N₂O in the atmosphere since the pre-industrial era is a direct result of chemical fertilisers, owing especially to the deployment of the so-called Green Revolution programmes of the 1960s that brought chemical fertilisers into use in Asia and Latin America.¹ They also now know that the amount of N₂O emissions resulting from the application of nitrogen fertilisers is more in the range of 3-5%, a dramatic increase from the IPCC's assumption of 1%.²

Yet even this 3-5% estimate does not go far enough in assessing current and future emissions from fertilisers. First, fertiliser use is expanding fastest in the tropics, where soils generate even higher rates of N₂O emissions per kg of nitrogen applied, particularly when the soils have been deforested.³ Secondly, fertiliser use per hectare is growing and new studies show that the rate of N₂O emissions increases exponentially as more fertiliser is applied.⁴

Chemical fertilisers are addictive. Because they destroy the natural nitrogen in the soils that is available to plants, farmers have to use more and more fertilisers every year to sustain yields. Over the past 40 years, the efficiency of nitrogen fertilisers has decreased by two-thirds and their consumption per hectare has increased by seven times.⁵

The effect on organic matter, the world's most important carbon sink, is the same. Despite industry propaganda to the contrary, recent studies demonstrate that chemical fertilisers are responsible for much of the massive loss of organic matter that has occurred in the world's soils since the pre-industrial era.⁶

"In numerous publications spanning more than 100 years and a wide variety of cropping and tillage practices, we found consistent evidence of an organic carbon decline for fertilised soils throughout the world," says University of Illinois soils scientist Charlie Boast.⁷

Soils around the world have lost, on average, at least 1-2 percentage points of organic matter in the top 30 cm since chemical fertilisers began to be used. This amounts to some 150,000-205,000 million tonnes of organic matter, which has resulted in 220,000-330,000 million tonnes of CO₂ emitted into the air or 30 per cent of the current excess CO₂ in the atmosphere!⁸

The overall contribution of chemical fertilisers to climate change has thus been drastically underestimated and a reassessment is urgently needed. Factoring in the recent research, the growing reliance on shale gas and the impacts on soil organic matter could push estimates of the share of global GHG emissions from chemical fertilisers to as high as 10%. The world needs to move quickly to end our deadly addiction to these toxic products.

1. Robert Sanders, "Fertiliser use responsible for increase in nitrous oxide in atmosphere," Berkeley News, April 2012: <http://news.berkeley.edu/2012/04/02/fertilizer-use-responsible-for-increase-in-nitrous-oxide-in-atmosphere/>

2. Creutzen et al, "N₂O release from agro-biofuel production negates global warming reduction by replacing fossil fuels," *Atmos. Chem. Phys.*, 8, 389-395, 2008: <http://www.atmos-chem-phys.net/8/389/2008/acp-8-389-2008.pdf>

3. Mulvaney et al, "Synthetic nitrogen fertilizers deplete soil nitrogen: A global dilemma for sustainable cereal production," *J. Environ. Qual.* 38:2295-2314 (2009): <https://dl.sciencesocieties.org/publications/jeq/pdfs/38/6/2295>

4. Shcherbak et al, "Global metaanalysis of the nonlinear response of soil nitrous oxide (N₂O) emissions to fertilizer nitrogen," *PNAS*, January 2014: <http://www.pnas.org/content/111/25/9199.full>

5. JS Schepers and WR Raun, "Nitrogen in agricultural systems," *Agron. Monogr.* 2008; GRAIN, "Earth matters - Tackling the climate crisis from the ground up," 28 October 2009: <https://www.grain.org/e/735>

6. Khan et al, "The myth of nitrogen fertilisation for soil carbon sequestration," *J. Environ. Qual.* 36:1821-1832 (2007): <http://www.ncbi.nlm.nih.gov/pubmed/17965385>

7. <http://www.sciencedaily.com/releases/2007/10/071029172809.htm>

8. GRAIN, "Earth matters - Tackling the climate crisis from the ground up," 28 October 2009: <https://www.grain.org/e/735>

Pollution as the solution

There is no precise definition for “climate smart agriculture”, and deliberately so. The Global Alliance for Climate Smart Agriculture instead leaves it to its members to determine what “climate smart agriculture” means to them.¹

“Membership in the Alliance does not create any binding obligations and each member individually determines the nature of its participation,” states the Alliance’s brochure.²

So what are these “climate smart agriculture” programmes that the Alliance members are pursuing?

The FAO, one of the leading organisers of the Alliance, produced a sourcebook and an accompanying list of ten climate smart agriculture “success stories”. All of the examples are top-down extension programmes, including a nitrogen fertiliser application technique promoted by the IFDC, that focuses on small-scale farmers in the South whose contributions to climate change are negligible.³

The CGIAR has a similar set of climate smart “success stories” that focus on the South, promote the use of fertilisers and genetically-modified organisms, and make no mention of agroecology.⁴ Some of the CGIAR centres are already working directly with the fertiliser industry and other agribusiness companies on climate smart projects. The International Maize and Wheat Improvement Center, for example, has a Climate-Smart Villages project with the fertiliser industry’s International Plant Nutrition Institute to help farmers in Africa and Asia “identify fertiliser options”.⁵

Most climate smart agriculture initiatives, however, come directly from the private sector, through alliances between the major agribusiness and food companies. The US government, which says its “climate smart agriculture” strategy will be “voluntary and incentive based”, cites ten cases of private sector initiatives in line with its strategy. Three of these programmes are based on “fertiliser optimisation”: one called “Field to Market” through the Alliance for Sustainable Agriculture (a network of the largest food and agribusiness companies), a second called “4R” that is run by The Fertiliser Institute and The Nature Conservancy, and a third that is a collaboration between Walmart, the Environmental Defense Fund and one of the biggest fertiliser distributors in the US.⁶

Walmart’s “climate smart agriculture” programme is particularly significant, since it is the world’s biggest food retailer. Walmart intends to achieve most of its targeted GHG emission reductions by enrolling its suppliers in “fertiliser optimisation” programmes developed by Yara and other fertiliser companies and their NGO partners. So far, Walmart has secured commitments from Campbell Soup, Cargill, Dairy Farmers of America, General Mills, Monsanto, Kellogg’s, PepsiCo, Smithfield Foods and Unilever to implement these programmes in their supply chains.⁷

What this means on the ground can be seen in the model project that Yara is implementing with PepsiCo on the plantations that supply oranges for its Tropicana juices. Under the project, PepsiCo gets these plantations to purchase Yara’s “low carbon footprint”-branded nitrogen fertilisers, which are supposed to produce

1. CIDSE, op cit.

2. Global alliance for climate smart agriculture brochure: <http://www.fao.org/3/a-au980e.pdf>

3. FAO, “Success stories on climate smart agriculture”, 2013: <http://www.fao.org/3/a-i3817e.pdf>

4. CGIAR; “Climate smart agriculture success stories with farming communities around the world”, 2013: https://cgspace.cgiar.org/bitstream/handle/10568/34042/Climate_smart_farming_successesWEB.pdf

5. “CIMMYT/IPNI fertiliser efficiency tool wins global innovation prize”, Climate change policy and practice, IISD, 20 February 2014: <http://climate-l.iisd.org/news/cimmytipni-fertilizer-efficiency-tool-wins-global-innovation-prize/>

6. US Department of Agriculture, “Agriculture and forestry: Part of the climate solution”, <http://www.usda.gov/wps/portal/usda/usdahome?contentidonly=true&contentid=climate-smart.html>

7. EDF, “Campbell Soup Company joins EDF initiative to reduce environmental impact of food production”, *Oklahoma Farm Report*, 2 June 2015: http://oklahomafarmreport.com/wire/news/2015/06/09482_CampbellJoinsEnvironmentalDefenseFund060215_114522.php; Walmart, “Sustainable food”: <http://corporate.walmart.com/global-responsibility/environment-sustainability/sustainable-agriculture>; Marc Gunther, “Walmart targets climate-smart suppliers”, *Corporate knights*, 24 April 2015: <http://www.corporateknights.com/channels/food-beverage/walmart-targets-climate-smart-suppliers-2-14298636/>

less fertiliser run-off. These “premium branded fertilisers” were developed by Yara “in order to avoid a situation where only organically produced food would gain the climate brand of approval”.⁸

In Africa, where much of the attention of the Global Alliance is perversely focused, the fertiliser industry and its allies maintain that increasing the use of fertilisers is a “climate smart” way to reduce greenhouse gas emissions. Yara and Syngenta are running trials in Tanzania to show that increasing yields with chemical fertilisers and hybrid seeds “reduces the need for deforestation, thereby avoiding GHG emissions”.⁹ This is what they refer to as “sustainable intensification”, a concept that the FAO categorises as “climate smart”.

Africa is not merely of interest to the fertiliser industry as a way to deflect attention from agricultural emissions in the North. It is the world’s fastest growing market for chemical fertilisers and an important new source of natural gas reserves, especially on the east coast between Tanzania and Mozambique. Yara is a leading player in initiatives to promote large-scale industrial agriculture in Africa, such as the World Economic Forum’s Southern Agricultural Growth Corridor project in Tanzania, where Yara is coincidentally in talks with the government for the construction of a new US\$2.5 billion nitrogen fertiliser plant.¹⁰

8. Yara, “Global fertilizer brands”, http://yara.com/products_services/fertilizers/global_brands/yaraliva.aspx; Yara, “Reducing carbon footprints”, http://yara.com/media/stories/tropicana_carbon_footprint_project.aspx

9. Yara, “Pushing climate smart agriculture”, Oslo, 16 March 2015: http://www.yara.com/media/news_archive/pushing_climate_smart_agriculture.aspx

10. Hellen Nachilongo, “Norwegian firm sets aside \$2.5b to build gas, oil plants”, *The East African*, 27 September 2014: <http://www.theeastafrican.co.ke/business/Norwegian-firm-sets-aside--2-5b-to-build-gas--oil-plants--/2560/2467020/-/pv6qml/-/index.html>

Going further:

Climate Smart Agriculture Concerns, a website devoted to providing information about and mobilising action against the Global Alliance for Climate Smart Agriculture: <http://www.climatesmartagconcerns.info/>

CIDSE, “Climate-smart revolution ... or green washing 2.0?":
<http://www.cidse.org/publications/just-food/food-and-climate/download>

Tom Philpott’s articles in *Mother Jones*, such as “How the Midwest’s corn farms are cooking the planet,” 12 August 2015, <http://www.motherjones.com/tom-philpott/2015/08/how-midwests-corn-farms-are-cooking-planet> and “A brief history of our deadly addiction to nitrogen fertiliser,” 19 April 2013: <http://www.motherjones.com/tom-philpott/2013/04/history-nitrogen-fertilizer-ammonium-nitrate>

Attac France et La Confédération Paysanne, “La “climate smart agriculture” une agriculture livrée à la finance carbone et aux multinationales,” mars 2015: <https://france.attac.org/nos-publications/notes-et-rapports-37/article/la-climate-smart-agriculture-une>

Marie Astier et Flora Chauveau, “Quand les multinationales de l’agrobusiness s’achètent une vertu climatique,” *Reporterre*, 7 avril 2015: <http://www.reporterre.net/Quand-les-multinationales-de->

African Centre for Biosafety, “The political economy of Africa’s burgeoning chemical fertiliser rush,” September 2014: <http://acbio.org.za/the-political-economy-of-africas-burgeoning-chemical-fertiliser-rush-2/>



GRAIN is a small international non-profit organisation that works to support small farmers and social movements in their struggles for community-controlled and biodiversity-based food systems. *Against the grain* is a series of short opinion pieces on recent trends and developments in the issues that GRAIN works on. Each one focuses on a specific and timely topic.

The complete collection of *Against the grain* can be found on our website at:

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