# More money, less dependency

# **Ecological farming to the benefit of farmers in Malawi and Kenya**

A briefing on the Greenpeace Africa report "Fostering Economic Resilience: The Financial Benefits of Ecological Farming in Kenya and Malawi"<sup>1</sup>

More money. Reduced risk. Lasting improvement. These are some of the benefits to farmers using ecological farming practices in Kenya and Malawi. Greenpeace Africa gathered data relating to the income and expenditure of those farmers practising two types of ecological farming. In Kenya we interviewed farmers practising pest control through push-pull technology and compared them with farmers using chemical pesticides or neither. In Malawi we interviewed farmers practising agroforestry with fertiliser trees and compared their profitability with farmers using chemical fertilisers, some of which were subsidised. The results were astounding. **Farmers practising ecological farming in Kenya could earn up to three times as much as their neighbours who use chemicals, and in Malawi 150% more than their counterparts using chemicals.** 

### **Back story**

Faced with widespread hunger and the need to increase farm production to feed a growing population, African governments have a unique opportunity to upscale and mainstream a modern model of farming ideally suited to small-scale farmers. Ecological farming, also known as agroecology, works with biodiversity and locally available natural resources to increase yields and incomes, while protecting soil, water and climate. Ecological farming does not rely on agrochemicals, but on knowledge and the scientific disciplines of microbiology, soil science and epigenetics to increase productivity with the financial benefits accruing to farmers, not corporations.

Some governments in Latin America and Asia are starting to recognise and support ecological farming, though a lot more remains to be done. Examples include:

- In Brazil, a 2010 Act prioritises support to rural extension activities in ecological farming and the agricultural research corporation (EMBRAPA) has programmes on agroecology.
- **Cuba** has long promoted ecological farming and organic farming, including in urban areas, based on strong farmer-to-farmer networks, disseminating knowledge through participatory approaches and government support.
- The **Philippines** stopped its fertiliser subsidy programme in 2009 and now aims to promote a balance of chemical and organic fertilisers, which includes some subsidies for using organic fertilisers.



### So why is ecological farming not intensively promoted in Africa

The continent is being targeted for the expansion of industrial agriculture - the so-called "Green Revolution" - based on agrochemical inputs that destroy the environment and consolidate corporate control. Since global agribusiness turned its attention to Africa less than a decade ago, small-scale farmers are being ousted from their land so that industrial agriculture interests, hiding behind initiatives like the Alliance for a Green Revolution in Africa (AGRA), the G8's New Alliance for Food Security & Nutrition and World Economic Forum's Grow Africa, can move in.

Although promoted as solutions to Africa's food security challenges, these initiatives are predominantly focused on boosting production of cash crops: grains, oils and biofuels, much of which is destined for export. At the same time, these "solutions" to increasing agricultural productivity impoverish small-scale farmers (SSFs) by putting them on a debt treadmill through loans to buy chemical fertilisers and pesticides.

Not only is the Green Revolution model of farming threatening the food sovereignty of SSFs and harming the environment, it is also expensive. Governments in Africa are spending vast amounts of money on subsidising chemical fertilisers and getting pesticides to farmers. Donors like UK, US and private philanthropies like the Bill and Melinda Gates Foundation are also pushing for increased use of chemicals as a solution to raising farm productivity in Africa. The beneficiaries of this agriculture model are the corporations manufacturing the chemicals and seeds whose markets expand and profits increase.

The evidence in this report suggests that it is more profitable for SSFs in Africa to practise ecological farming that uses no chemical pesticides or fertilisers than it is to use chemicals. Presenting the results of new fieldwork in Malawi and Kenya, this report shows that farmers practising agroforestry (involving the use of natural 'fertiliser trees' instead of chemical fertilisers) and push-pull technology

(which eliminates the need for chemical pesticides) achieve higher incomes and yields than those practising chemicalintensive agriculture.

### 7 Principles of Ecological Farming

- 1. Food sovereignty ecological farming supports a world where producers and consumers, not corporations, control the food chain. Food sovereignty is about the way food is produced and by whom.
- 2. Rewarding rural livelihoods ecological farming contributes to rural development and fighting poverty and hunger, by enabling livelihoods in rural communities that are safe, healthy and economically viable.
- 3. Smarter food production and yields in order to increase food availability globally and improve livelihoods in poor regions, we must achieve higher yields through ecological means and reduce unsustainable use of food crops currently grown (reduce food waste and meat consumption, and minimise land for bio-energy).
- 4. Biodiversity ecological farming is based on diversity from the seed to the landscape level, relying on and protecting nature by taking advantage of biodiversity. This biodiversity translates into a high diversity in the food we eat, improving diets and nutrition, taste and health.
- 5. Sustainable soil health ecological farming can increase soil fertility without chemicals while protecting soils from erosion, pollution, acidification; and by increasing soil organic matter that enhance water retention in the soil and prevent land degradation.
- 6. Ecological crop protection ecological farming enables farmers to control pest and weeds without the use of chemical pesticides that can harm our soil, water and ecosystems, and the health of farmers and consumers.
- 7. Resilient food systems to climate change ecological farming can be used as an adaptation and mitigation strategy to climate change, creating resilience with biodiversity.





### Comparing chemical-intensive and ecological farming

Ecological farming ensures healthy farming and food by protecting soil, water and climate. It promotes biodiversity and does not contaminate the environment with chemical inputs or genetic engineering. By making the best possible use of locally available inputs, ecological farming keeps money in the local economy.

Ecological farming depends on diversity at all levels of the farm: seed, crop and farm. A mix of different crops and varieties in one field is a proven farming method to increase yields and resilience to erratic weather changes. Growing legumes and adding compost, animal dung or green manures improve soil fertility without synthetic fertilisers, and at the same time cut farmers' expenses on artificial inputs.

Farmers can find long-term solutions to pest problems by designing diverse crop fields, rotating crops and using low-input technologies that are locally available. Ecological pest protection is based on enhancing the "immunity" of the agro-ecosystem by promoting healthy soils and healthy plants.

Ecological farming practices include agroforestry, push-pull technology, sustainable land management, water harvesting and organic farming. *Critically, ecological farming lowers production costs and it increases yields; thus boosting incomes for small-scale farmers in resource-poor communities.* 

In contrast, chemical-intensive agriculture typically involves the use of chemical fertilisers and pesticides, together with hybrid seeds. It can be at a massive cost to farmers, our environment and governments: ten countries in sub-Saharan Africa are currently together spending US\$1.05 billion a year on fertiliser subsidy programmes – an average of 30 per cent of their agriculture budgets. Chemical-intensive farming also causes farmer and public health problems due to pesticide use: the UN Environment Programme has calculated that the cost of pesticide-related illnesses in sub-Saharan Africa, for governments and those affected, could reach \$90 billion during 2005-20.

The use of chemicals often damages soils. For example, acidification is now a widespread problem in many parts of Asia after years of chemical fertiliser dependence promoted by the Green Revolution. Overuse and inefficient use of chemical fertilisers is a major global problem: some 30-80 per cent of nitrogen – applied to farmland as fertiliser – escapes to contaminate water systems and the environment. Chemical-intensive farming is also a major contributor to climate change: agriculture accounts for as much as 32 per cent of global greenhouse gas emissions (including the impact of deforestation caused by farming) and the manufacturing, transport, distribution and use of chemical fertilisers alone accounts for around 5 per cent of these emissions.

### Fieldwork in Kenya and Malawi

Two examples of ecological farming systems have shown promising results: push-pull technology in Kenya developed by ICIPE (an international research institute working on insect physiology and ecology); and agroforestry in Malawi (developed by ICRISAT and promoted by ICRAF, the World Agroforestry Centre and Total Land Care, an NGO). Both farming practices use biodiversity-centred techniques and innovative approaches to produce more food with less chemical inputs and lower costs for farmers. Push-pull eliminates the need for pesticides by using plants that attract and repel pests; agroforestry replaces chemical fertilisers with the use of fertiliser trees.

Although there are existing studies that review the yields achieved using these ecological approaches, there is shockingly little data on how these farming systems are impacting farmers financially. In 2014, Greenpeace surveyed small-scale farmers in Malawi and Kenya, recording data from regions where ICIPE and ICRAF are promoting these techniques. The results of our fieldwork show that it is more profitable for SSFs to practise ecological farming that uses no chemical pesticides or fertilisers than it is to use chemicals, even when chemicals were subsidised! SSFs practising these techniques were found to achieve higher incomes and yields than those using chemicals.



# Kenya

Push-pull technology is an ecological farming system used to control parasitic weeds and insects that damage crops; it involves no use of chemical pesticides.



Our study measured the benefits of practising push-pull compared to either the absence of push-pull or to using chemical pesticides. We interviewed some 80 farmers in total in Kitale and Mbita regions of western Kenya:

- Kitale farmers using push-pull without pesticides
- Kitale farmers not using push-pull using chemicals, including pesticides
- Mbita farmers using push-pull without pesticides
- Mbita farmers not using push-pull and not using pesticides.

### We found that:

## **INCOME PER ACRE OF MAIZE**



Average annual income in Kenya is US\$ 256, and much lower in rural areas.

# Malawi

Greenpeace Africa interviewed roughly 80 small-scale maize farmers in the Salima district of central Malawi to assess the relative benefits to farmers using chemical fertilisers versus agroforestry, specifically fertiliser trees. Agroforestry is a form of ecological farming that incorporates 'fertiliser trees' into farming systems to build soil health without the use of chemical fertilisers.



### We found that:





US\$ 93 represents one third of average per capita income in Malawi, which is around US\$ 270.

### **Other findings**

Our research findings also challenge the assumption that ecological farming requires more labour time and costs than chemical-intensive farming. In Kitale, Kenya, a smaller number of push-pull farmers incur labour costs than chemical farmers (61 per cent compared to 80 per cent). In Malawi, more farmers buying chemicals (29 per cent) incurred labour costs on their farm (for all crops including maize) than those practising agroforestry (21 per cent).

Our findings show that not only are agroforestry and pushpull farmers economically better off, but also that many chemical farmers would switch to ecological farming if the government supported the transition. Such support is likely to be more cost-effective for the government, and more profitable for farmers, than subsidising or using chemical fertilisers.

# Government spending on chemicals and ecological farming

Currently, most governments around the world are spending vastly more on chemicals than on ecological farming and the costs are likely to increase as fertiliser costs escalate.

In 2012/13, the Kenyan government spent \$34.3 million on its input (fertilisers and seeds) subsidy programme – the National Accelerated Agricultural Inputs Access Programme (NAAIAP). Kenya imported \$1.3 billion worth of chemical fertilisers and \$578 million worth of pesticides during 2004-11. Government figures are not broken down to show how much is spent on ecological farming, but it is likely to be significantly lower than the level currently or planned to be spent promoting chemical inputs.

Similarly, Malawi's Farm Input Subsidy Programme (FISP) accounted for a huge 51 per cent of the country's agriculture budget in 2012/13 and 43 per cent in 2013/14. This amounts to around 9 per cent of Malawi's entire national budget each year. As in Kenya, our findings suggest that it would be more profitable for farmers and the government to invest this money in ecological farming. Yet, *Malawi's budget allocation to the FISP is ten times greater than spending on ecological farming.* 



### **Recommendations**

Our findings show that, to enhance small-scale farmers' economic well-being and food security, governments will get better value for their money by supporting ecological farming over chemical inputs. Therefore, governments should start phasing out chemical input subsidy programmes and promote 'enabling' policies that support ecological farming by:

- Creating and fully funding an Ecological Farming Strategy that includes time-bound targets for phasing out chemical input subsidies, while drastically increasing national budgets devoted to supporting ecological farming (e.g. subsidising bio-fertilisers; training in organic fertilisation).
- Aligning all relevant government programmes with the Ecological Farming Strategy, including climate adaptation and agriculture programmes.
- Refocusing extension, agricultural research and rural credit programmes to move away from supporting chemical-intensive agriculture and towards supporting ecological farming.
- Disaggregating and tracking budget spending on ecological farming to assess and increase support for it over time.

International organisations, donors and philanthropies should:

- Increase investments in and shift existing agricultural finance to scale up ecological farming. Investments must be predictable, transparent, untied, and channelled through budget support where appropriate.
- Invest in rebuilding public extension services to scale up the uptake of ecological farming practices.
- Champion reform of global agricultural research and development to re-focus this on ecological farming.
- Focus climate change adaptation plans and financing on supporting those most vulnerable to risk – small-scale farmers – to increase their uptake of ecological farming practices for increased resilience.

### Working together to scale up

We are looking for more researchers and partners to work with us in strengthening the case for ecological farming. Should you be interested in partnering with Greenpeace, please contact Glen Tyler at glen.tyler@greenpeace.org.



The fully referenced report is available at: www.greenpeaceafrica.org/financialbenefits



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Greenpeace has been working in Africa to end environmental destruction and fighting for the right of Africans to a healthy environment since the early 1990s. Our campaigns focus on climate change, halting the destruction of tropical forests, supporting ecological farming and preventing the degradation of marine ecosystems.

