

FARMING FOR THE FUTURE:

Organic and Agroecological Solutions to Feed the World

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Executive Summary

There is no debate that eliminating hunger worldwide is one of humanity's greatest challenges in the 21st century. However, there are radically divergent visions for how to achieve this goal. Many people equate "feeding the world" with the need to produce more food. Yet this simplistic analysis leaves fundamental facts about world hunger out of the picture. In fact, the mandate to produce more food to feed the world is often invoked to justify food and farming policies and practices that exacerbate the conditions of hunger and undermine our ability to feed future generations.

Feeding the world sustainably requires that we protect the ecological resources that are essential for producing food now and in the future. As this report documents, four decades of scientific evidence show that agroecological farming, including diversified organic agriculture,[†] is the most effective agricultural response to the environmental challenges that threaten our future food security, such as climate change, soil erosion, water scarcity and loss of biodiversity.

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Furthermore, research consistently demonstrates that world hunger is not primarily a problem of overall supply of food, but rather of poverty, lack of democracy and unequal access to land, water and other resources, especially for women.^{1,2} As a systems-based approach to food and farming, agroecology addresses the social and economic drivers of chronic hunger endured by nearly 800 million people around the world.³

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Meanwhile, today's dominant industrial food system is rapidly depleting and degrading the world's soil, water and biodiversity; intensifying climate disruption; consolidating wealth and power over food-related resources; and accelerating world poverty and hunger. Environmental harm caused by industrial agriculture costs the world three trillion dollars each year according to the [United Nations Food and Agriculture Organization](#).⁴

Despite this evidence, a chorus of agribusiness leaders, lobbyists and policymakers insists we need

[†] Diversified farming systems are a set of methods and tools developed to produce food sustainably by leveraging ecological diversity at plot, field, and landscape scales. - UC Berkeley Center for Diversified Farming Systems

more of the same to feed a growing population of up to nine billion people by 2050. As Friends of the Earth's 2015 report *Spinning Food* documents, agrichemical companies and their allies spend tens of millions of dollars a year to spread misleading messages about the safety and necessity of chemical-intensive industrial agriculture. This narrative — along with a political process captured by corporate interests — bolsters a system that delivers billions of dollars a year in profits to agribusinesses from fossil-fuel-intensive production and costly inputs — including pesticides, synthetic fertilizers, antibiotics, growth hormones and genetically engineered seeds.

This report debunks three dominant myths about food, farming and hunger that keep society on the path of business as usual. We broadly characterize this as the path of “industrial agriculture” and introduce the principles of agroecology as a more sustainable and just foundation for our food future. While industrial agriculture is chemically-intensive and biologically-simplified, agroecology works with nature as a powerful ally, adapting to and regenerating nature's resources.⁵ Agroecological farming methods include intercropping, cover cropping, crop rotation, conservation tillage, composting, managed livestock grazing and combined animal and plant production. These methods foster biodiversity, natural soil fertility, water conservation and biological control of insects.

We detail extensive research showing that organic and agroecological farming systems are a crucial foundation to feed a growing world population, protect farmer livelihoods and preserve ecological resources to sustain future generations. Our analysis spans both developed and developing countries.

Finally, we discuss policy priorities for advancing organic and agroecological farming. While we focus primarily on the United States, it will take a diversity of approaches and innovations at both local and global scales to transform our food and farming systems.

In the face of climate change and rising demand for resources, the need for ecologically sustainable and resilient food production is more urgent than ever. “Increasing the proportion of agriculture that uses sustainable, organic methods of farming is not a choice, it's a necessity,” says Claire Kremen, Professor of Conservation Biology at University of California at Berkeley, “We simply can't continue to produce food far into the future without taking care of our soils, water and biodiversity.”⁶

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—Professor Claire Kremen, UC Berkeley

The good news is that solutions are available — if policymakers, citizens, and businesses are willing to make vitally needed changes. Over the past decade, the ecological farming and food sovereignty movements have grown from a small trickle to a powerful stream, propelling millions of farmers, eaters and policymakers toward a better future. By advancing agroecology and organic farming, Friends of the Earth and our allies are helping to lead a groundswell of citizen, consumer and farmer action focused on building a sustainable, healthy and equitable food system for all.

Countering Food Industry Myths with Facts

This report debunks three pervasive misconceptions about the food system. These misleading claims, which are propagated by agribusiness, philanthropic and international institutions and policymakers, are used to justify policies, research and markets that propel destructive agricultural practices and concentrate wealth and power in the hands of the few. We detail research that illustrates why the current industrial food system is untenable — and why we must continue to build a more sustainable and just food system rooted in agroecological principles.

Addressing the Root Causes of World Hunger

Myth: We must significantly increase food production to feed the world.

Facts: Scientists estimate that farmers already produce enough food to feed 10 billion people — far more than the current population of roughly 7.3 billion.⁷ Still, nearly 800 million go hungry every day and many more are undernourished.⁸ Research consistently demonstrates that world hunger is not a problem of supply, but rather of poverty, lack of democracy and unequal access to land, water and other resources, especially for women.^{9,10}

Solution: Solving world hunger requires policies and programs that democratize access to food, arable land, water, credit and fair markets, particularly for women. To address hunger and poverty sustainably, we must expand public investment in agroecological farming, especially among the small food producers who make up more than 90 percent of all farmers worldwide.¹¹ We must also reduce global food waste and shift consumption towards plant-based foods (particularly in the U.S. and other wealthy countries that consume large amounts of meat) and away from growing feed for livestock and biofuels.

Producing Enough Food to Feed the World

Myth: Organic and agroecological farming cannot produce enough food to feed the world.

Facts: A growing body of research shows that agroecological farming systems, including organic agriculture, can yield more than enough food to feed a growing population while generating significant economic, health and environmental benefits.^{12,13} By improving soil, conserving water and protecting biodiversity, ecological farming methods create greater resilience than industrial agriculture to the impacts of climate change.

Solution: To ensure ample yields while protecting natural resources, we must invest more public funds in agroecological farming research, technical assistance, credit access and other incentives to expand regional, organic and diversified farming systems.

Protecting Human and Ecological Health for Long-term Sustainability

Myth: Large-scale industrial agriculture is more efficient and sustainable than organic and agroecological farming and provides the technologies and methods we need to feed the world.

Facts: Measured simply by the production of calories and economic efficiency, industrialized agriculture might seem “efficient,” but this ignores the massive environmental, social and health degradation wrought by industrial food production, processing, distribution, consumption and waste. By all of these measures — costs we all pay — the dominant food system is remarkably expensive and inefficient. Rather than feeding the world sustainably into the future, the industrial food system is cutting off the branch we’re sitting on by degrading the ecosystem functions we rely on to produce food.

Solution: Agroecological farming methods are scientifically proven to be the best path to long-

term sustainable food production; they produce ample harvests while protecting human and ecological health. Policymakers must strengthen regulation of industrial agriculture, eliminate subsidies that promote destructive industrial farming practices and invest in diversified, ecological farming systems.

Major U.S. Policy Reform Must be on the Menu

Current U.S. agriculture policies expend billions of dollars in subsidies for ecologically destructive industrial production of commodity crops. Between 2009-2012, we spent an average of \$11 billion a year to subsidize chemical-dependent industrial production of grain, seed and fiber crops that provide the raw ingredients for animal feed, biofuels and highly processed food.¹⁴ Meanwhile, U.S. policymakers invest minimal public resources — averaging just \$138 million a year from 2009-2012 — to build healthy, diversified, local and regional food economies.¹⁵ There is also a massive disparity in research funding; in the U.S., less than two percent of public agricultural research dollars go to organic and biologically diversified farming.¹⁶

Policy solutions in the U.S. require transforming the food system by shifting away from subsidies for large-scale, chemical-intensive monoculture and towards far greater support for organic agriculture, conservation practices and diversified farming for local and regional markets. To this end, we must:

- Boost public investment in research, technical assistance, conservation and other support to expand local, organic and diversified agroecological systems focused on domestic production;
- Increase small- and mid-scale food producers’ access to arable land, water, credit and fair markets with a focus on women, disadvantaged and young farmers;
- Eliminate subsidies that promote destructive industrial farming of crops and livestock and link crop insurance to core conservation practices;
- Shift our diets and enact nutrition, agriculture and procurement policies that promote consumption of more plant-based foods and less meat;
- Shift policies and production away from biofuels and livestock feed and into diversified, nutritious crops;
- Create stricter regulations and anti-trust enforcement to prevent consolidation throughout the food supply chain;

- Increase living wages and strengthen and enforce labor laws protecting agricultural workers, particularly women;
- Strengthen the regulation of industrial agriculture and concentrated animal feeding operations to reduce air and water pollution and curb the unnecessary use of antibiotics and hormones; and
- Reduce the billions of tons of food wasted each year.

Conclusion

Agroecology offers humanity essential tools to address climate change, environmental destruction and world hunger. To feed the world while also confronting multiple environmental crises, we need policies, incentives and public investments that promote agroecology, diversified organic farming and small- and mid-scale farmer livelihoods. Solutions must focus on reviving rural economies, advancing food sovereignty and democratizing governance and power in the food system. By transitioning from industrial to diversified organic and agroecological food and farming systems, we can produce enough food to feed the world, reduce poverty and restore essential natural resources to feed the planet for generations to come.

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