

# Women and Biodiversity Feed the World, Not Corporations and GMOs

By [Dr. Vandana Shiva](#)

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‘Women have been the primary growers of food and nutrition throughout history,’ writes Dr. Vandana Shiva, ‘but today, food is being taken out of our hands and substituted for toxic commodities controlled by global corporations.’ (Photos: Georgina Smith/CIAT)

The two great ecological challenges of our times are biodiversity erosion and climate change. And both are interconnected, in their causes and their solutions.

Industrial agriculture is the biggest contributor to biodiversity erosion as well as to climate change. [According](#) to the United Nations, 93% of all plant variety has disappeared over the last 80 years.

Monocultures based on chemical inputs do not merely destroy plant biodiversity, they have destroyed soil biodiversity, which leads to the emergence of pathogens, new diseases, and more chemical use.

Our [study of soils](#) in the Bt cotton regions of Vidharba showed a dramatic decline in beneficial soil organisms. In many regions with intensive use of pesticides and GMOs, bees and butterflies are disappearing. There are no pollinators on Bt cotton plants, whereas the population of pollinators in [Navdanya](#)’s biodiversity conservation farm in Doon Valley is six times more than in the neighbouring forest. The UNEP has calculated the contribution of pollinators to be \$200 billion annually. Industrial agriculture also kills aquatic and marine life by creating dead zones due to fertilizer run off. Pesticides are also killing or damaging aquatic life .

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Besides the harm to biodiversity and the climate, industrial agriculture actually undermines food and nutrition security. Firstly, industrial agriculture grows commodities for profits of the agrichemical (now also Biotech) and agribusiness corporations. Only 10 percent of the annual GMO corn and soya crop goes to feed people. The rest goes to animal feed and biofuel. This is clearly not a food system that feeds the world.

Secondly, monocultures undermine nutrition by displacing the biodiversity that provides nourishment and the diversity of nutrients our body needs. Herbicides like Roundup do not just kill the milkweed on which the monarch Butterfly larvae feed, they kill sources of nutrition for humans – the amaranth, the “bathua,” and the mixed cropping that produces

more “Nutrition per Acre” than industrial monocultures (see [Navdanya’s report on Health per Acre](#)).

Having destroyed our sources of nutrition by destroying biodiversity—and creating vitamin A, iron and other deficiencies—the same companies who created the crisis are promising a miracle solution: GMOs. Genetically engineered Golden Rice and GMO Bananas are being proposed by corporations hiding behind the cloak of academia as a solution to hunger and malnutrition in the Global South. But these are false miracles.

Indigenous biodiverse varieties of food grown by women provide far more nutrition than the commodities produced by industrial agriculture. Since 1985 the false miracle of Golden Rice is being offered as a solution to vitamin A deficiency. But Golden rice is still under development. Billions of dollars have been wasted on a hoax.

On 20th of April, the White house gave an award to Syngenta which had tried to pirate India’s rice diversity, and owns most of the 80 patents related to Golden Rice. This is reminiscent of the Emperor who had no clothes. Golden Rice is 350% less efficient in providing vitamin A than the biodiversity alternatives that women grow. GMO ‘iron-rich’ Bananas have 3000% less iron than turmeric and 2000% less iron than amchur (mango powder). Apart from being nutritionally empty, GMOs are part of an industrial system of agriculture that is destroying the planet, depleting our water sources, increasing greenhouse gases, and driving farmers into debt and suicide through a greater dependence on chemical inputs. Moreover, these corporate-led industrial monocultures are destroying biodiversity, and we are losing access to the food systems that have sustained us throughout time. Biodiverse ecological agriculture in women’s hands is a solution not just to the malnutrition crisis, but also the climate crisis.

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Women have been the primary growers of food and nutrition throughout history, but today, food is being taken out of our hands and substituted for toxic commodities controlled by global corporations. Monoculture industrial farming has taken the quality, taste and nutrition out of our food.

In addition to destroying biodiversity, industrial agriculture is the biggest contributor of greenhouse gases (GHGs) which are leading to climate change and climate chaos. As I have written in my book, [Soil Not Oil: Environmental Justice in an Age of Climate Crisis](#), 40% of all GHGs—including carbon dioxide, nitrogen oxide, and methane—come from industrialised globalized agriculture. And chemical monocultures are also more vulnerable to climate change as we have witnessed in the unseasonal rains at harvest time in 2015.

On the other hand, organic farming reduces emissions, and also makes agriculture more resilient to climate change. Because organic farming is based on returning organic matter to the soil, it is the most effective means to remove excess carbon in the air, where it does not belong, and putting it in the soil, where it belongs. Navdanya’s research has shown that organic farming has increased carbon absorption by 55%. International studies show that with 2 tons of Soil Organic Matter (SOM) per hectare, we can remove 10 gigatons of carbon dioxide from the atmosphere, which can reduce the atmospheric concentration of carbon back down to pre-industrial levels of 350 ppm.

In addition, organic matter in the soil also increases water-holding capacity of the soil, reducing the impact of floods and droughts. Just 1% increase in Soil Organic Matter can raise the water-holding capacity of soil by 100,000 liters per hectare. And an increase of 5% can raise it to 800,000 liters. This is our insurance against climate change, both when there is drought and too little rain, and when there are floods and excess rain. On the other hand, cement and concrete increases runoff of water, aggravating floods and drought. We witnessed this in the Uttarakhand disaster in 2013 and in the Kashmir disaster in 2014.

At harvest time of spring 2015 India had unseasonal rains which destroyed the crops. More than a 100 farmers committed suicide. The unseasonal rains due to climate instability added to the burden of debt the farmers are already carrying due to rising costs of production and falling prices. Both the crisis of debt leading to climate change and the climate crisis have a common solution – a shift to biodiverse ecological agriculture which is free of high cost chemical inputs and dependence on corporate seeds, hence of debt, and also has climate resilience built into it through biodiversity and organic soils.

4000 years ago our ancient Vedas had guided us, *“Upon this handful of soil our survival depends. Care for it, and it will grow our food, our fuel, our shelter and surround us with beauty. Abuse it, and the soil will collapse and die, taking humanity with it.”*

*Dr. Vandana Shiva is a philosopher, environmental activist and eco feminist. She is the founder/director of Navdanya Research Foundation for Science, Technology, and Ecology. She is author of numerous books including, [Soil Not Oil: Environmental Justice in an Age of Climate Crisis](#); [Stolen Harvest: The Hijacking of the Global Food Supply](#); [Earth Democracy: Justice, Sustainability, and Peace](#); and [Staying Alive: Women, Ecology, and Development](#). Shiva has also served as an adviser to governments in India and abroad as well as NGOs, including the International Forum on Globalization, the Women’s Environment and Development Organization and the Third World Network. She has received numerous awards, including 1993 Right Livelihood Award (Alternative Nobel Prize) and the 2010 Sydney Peace Prize.*

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