

THE WORM IS TURNING

A documentary film by
Hilary Bain and Åsa Mark

Total run time 103 min • Aspect ratio: widescreen • DVD video

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THE WORM IS TURNING starts in Punjab, India. After 40 years of chemical agriculture introduced as the Green Revolution, we see a dying, poisoned land: there are fields as far as the eye can see of dead soil, no trees, no birds, no insects, and polluted water and air.



“Chemical farming is a system of killing all other life, to aid the growth of one single plant.”



Dr Amar Singh Azad, a pediatrician and community health specialist says;
"The toxins have penetrated so deep that they are affecting every aspect of life. We are already in the very active process of slow death. And this phenomenon is happening in other parts of the world also but in Punjab particularly, it's very intense, very intense!"



A train that leaves every evening from Bathinda
nick-named the "cancer train".
It carries patients to Bikaner Rajasthan
as there is no free treatment in Punjab.

PUSHING PEOPLE OFF THE LAND

The plan is to continue the corporatization of agriculture in India by eliminating most of India's farmers, there are 600 million still on the land, by making them corporate farm labor, or pushing them into cities, as was done America after World War 2.



THE EFFICIENCY MYTH



“Our agricultural systems have developed in ways that have increased, very significantly the dependency of farming on fossil energy.”
says **Olivier De Schutter**, former Special UN Rapporteur on the Right to Food.

“If we leave it to the market forces, and that is the key point, the large farms will gradually crowd out all other forms of production. But that is not the best way to use the meager resources we have at our disposal.”



Vandana Shiva, environmental activist and writer, breaks down the "efficiency" myth of the agri-business model of gigantic, centralized chemical farming methods, compared to organic farming on a small scale, which is in fact more productive.





Chemical farming: 10 units in = 1 unit out
Ecological farming: 1 unit in = 2 or more units out



THE WAR that never ended



Vandana Shiva also reveals where the modern, American method of farming came from. It's World War 2's leftovers of bio-weaponry and excess nitrogen for bomb manufacture. In fact it's the war that never ended, it moved onto the land, all over the world.



THE TAKEOVER



Agri-business took over agriculture after World War 2 in America. The official motto from the US department of agriculture was: **"Get big or get out!"**. From 1945 to 1970 60% of the farmers were pushed off the land and into the cities to become factory workers. And from then on there was the complete chemicalization and commodification of food crops.



THE FROG IS THE NEW CANARY...

This chemical agriculture is changing the environment in very dangerous ways. The pesticides are endocrine disruptors, they disrupt the hormonal system, as well as being toxic. **Tyrone Hayes**, a biologist and professor at UC Berkeley has shown that atrazine, the second most used pesticide globally, is changing male frogs into females.



Frog populations around the world have declined 70%. That's just *one* species of many, and humans aren't immune. The rapid rise of breast and prostate cancer around the world correlates to the introduction of pesticides.

Meriel Watts, of Pesticide Action Network New Zealand; *“There’s 98 pesticides that are implicated in causing breast cancer. We are surrounded by these chemicals.”*





WORKING WITH NATURE

“The principle of nature is co-operation.” reads the sign as you enter **Bhaskar Save’s** 14 acre farm in Gujarat, India. Bhaskar Save has been farming organically for over 50 years and his coconut trees are the highest yielding in India.



Ecological farming, or agro-ecology, can in fact feed more people better. In study after study, from the UN or from the experience of the hundreds of millions of small farmers that actually do feed most people in the world, it is clear, small ecological farms are in fact more productive. They use the limited resources of the planet in the most efficient way possible.



“There’s a million great examples that it doesn’t have to be blast away chemical war fare against the land in order to produce food” says **Jeff Rutherford**, a permaculturalist / journalist in Thailand.

Visionary ecological farmers, such as **Bob Cannard** in Northern California and **Will Allen** in Vermont, are both growing a great variety of crops, and at the same time improving their soils, as well as teaching lots of young people how to farm this way.



THE LAND AND THE ANIMALS NEED EACH OTHER

The animals provide the fertility to the farm. Once you take away the animals from the farm that fertility needs to be bought. **Joel Salatin** in Virginia, calls himself a “grass farmer”. Raising cattle, pigs, turkeys and chickens, he says “*My job is to make as many beings as possible happy.*” The animals all lead natural lives in the sunshine, fertilizing the soil with their waste, instead of being cooped up in a cement factory, in miserable conditions, creating toxic lagoons.



Ecological farming produces more food, healthier food, can restore the environment and is the only truly sustainable agriculture system there is!



BIOLOGICAL IMPERIALISM

Agri-business is trying to own all seeds by buying up seed companies around the world, by genetically changing the seeds, mostly to be pesticide tolerant, patenting them, thus giving bigger profits to the chemical corporations. 10 corporations now own 75% of the world's seed companies, 3 corporations own more than 50%!



Seeds used to be saved and exchanged between farmers and didn't have to be bought. **Winona LaDuke**, environmental activist and writer, asks *"Who gave them the right to do that? Is a very very important question in the issues of genetic engineering and patenting, the question of who gets to own life and who gets to change it?"*. **Vandana Shiva** explains that the old chemical giants became the new seed and biotech giants, and they used the World Trade Organization as a global constitution for corporate control.





Massively subsidized American and European cheap crops have been exported to third world countries. *"Which is destroying the small farmers in the millions"* says **Helena Norberg-Hodge**, founder of Local Futures. 105 countries have been made food-import dependent since the inception of WTO in 1995. Not a good recipe for food security and sustainability.



FEEDING THE WORLD



"The reason a billion people are going hungry is not because of a shortage of food. We have enough food to feed the world." says **Raj Patel** author of *Stuffed and Starved*. The reason is because of power and the way food is distributed through the market, and it's women who are systematically disempowered, and therefore it's women who are disproportionately going hungry.



SEED FREEDOM banking on the seeds

In Andhra Pradesh in India, the Deccan Development Society founded by **P.V. Satheesh**, has helped 5,000 dalit women, who got their land through land reform policies to become self-sufficient in food, by helping them to improve their soils and save their seeds.



They grow a variety of millets and other crops, to cope with different weather conditions, so they will always have some crops, even if they lose others. By growing a diversity of crops they assure that their food doesn't become a commodity sold by their husbands. *"I think it's a very feminist interpretation of what agriculture should be."* Says **P.V. Satheesh**. They are not dependent on the global market for their food. *"These are the women who hold the power of the future in their hands. Real power rests with these people, those who have control over their food and seeds."*



SMALL IS MORE PRODUCTIVE



Olivier De Schutter says *“In 3 years we could double food production through agro- ecology!”*. *“And it can sometimes produce 2-300% more in terms of nutrition.”* says **Vandana Shiva**, *“we’ve studied 2000 farms of our members across the country, every eco-system. Ecological biodiverse farms produce 1½ to 2 times more in quantity.”*



AGROECOLOGY a win win for all life

Agriculture has the greatest impact on the planet, so when we choose where our food comes from, that choice goes a long way. *“Food’s something you can just do today, you vote 3 times a day...and we can make a really big difference.”* says **Jeff Rutherford**.



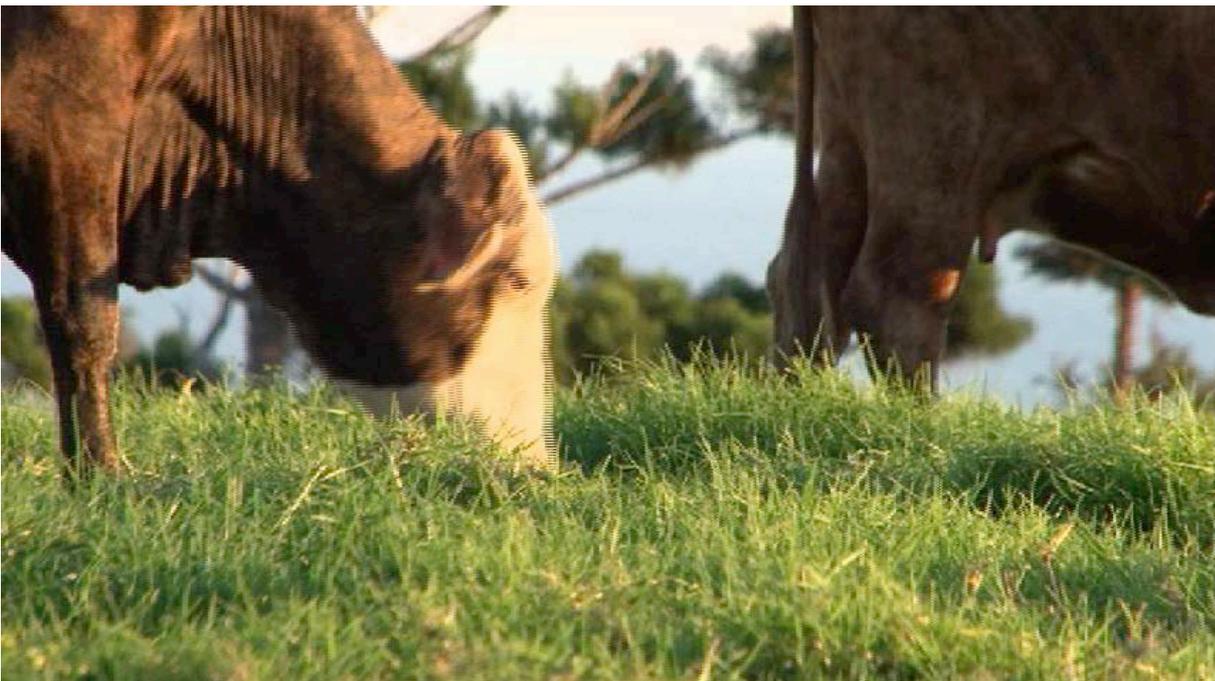
Vandana Shiva adds *“We need so-called consumers who eat, to be co-producers, deeply aware of what they are eating, how it was produced, who’s producing it, and to throw their weight behind the small-farmer, the local production, and organic-ecological production”*.



With agroecology we can produce more, diverse, healthier food on less land, as well as keep more people in the rural areas by providing meaningful work on the farms. More carbon would be sequestered in the soil, to feed the soil which feeds the crops.



By supporting proper animal husbandry, by mimicking nature, eating less meat, but healthier meat, we would be supporting animals that have healthier, natural lives in the sun and fresh air, where their healthy, natural waste would feed the grasslands and keep the soils healthy.



ALIGNING OURSELVES WITH THE PLANET



Two thirds of the Earth's landmass has been desertified much of it by bad land management, keeping animals off the land or leaving them there for too long, or fire.



The good news, says **Brock Dolman**, biologist at Occidental Arts and Ecology Center, is that humans know how to make topsoil at a rate that's much faster than natural processes: ecological farming can make 1 inch of topsoil in 5 years, whereas it takes nature up to 1000 years; *"We have all the tools and knowledge to figure out how to re-build soil, and re-make soil in collaborative partnership with life"*.



So, all of us who can choose who we buy our food from, need to get going and do the most subversive thing you can do in the United States, according to **Joel Salatin**: *“Buy unprocessed food directly from a known source, and prepare it in your own kitchen!”*. This way *“the entire military-industrial complex would change”* says **Helena Norberg-Hodge**.



QUESTIONS TO THE FILM MAKERS:

Why did you make the film?

When I realised the extent of pesticides used, and where they come from, I was shocked. I had assumed that if they are toxic, surely there would be some regulation in place. The lack of regulation was the second shock. These chemicals are highly toxic, even in very small amounts. Whole ecosystems are being destroyed from growing food this way. If people knew they would be shocked too.

What is the most shocking thing you realised from making the film?

The very deep connection there is between modern agriculture and war.

What was the most challenging aspect of making the film?

Taking on such a huge subject, food production, it being the biggest activity on the planet, and to connect the dots on global food issues, and showing why such a toxic, destructive way of producing food dominates the world.

Why was it important for you to connect the dots?

There's a lot of corporate interests out there that want to keep things complex and separated, it's a way to confuse and compartmentalise so they can sell you their products. There's a lot of misinformation too. I wanted to clarify by connecting dots, as a way to understand what is going on, and be able to make informed choices of where your food comes from.

Why is organic more expensive than conventional [chemical] food?

Price is the real clincher for most people's food choice, ie whether to buy organic or not. If there is that choice in their supermarket since 96% of food sold in the US is grown using chemicals.

Government subsidizes chemical agriculture, by giving medium and large sized farmers a stipend. Then huge grain corporations purchase the crops for less than it cost the farmer to grow it. That's how the huge food companies can produce cheap food. The question needs to be rephrased;

Why is conventional food cheap?

and *Why should anybody have to eat food grown using toxic chemicals?*

Why is the focus of the film on India and the USA?

The chemical agriculture that dominates the world comes from the USA, and it was exported to the world as the so called Green Revolution. When big corporate monoculture took over in America, farmers were pushed off the land. The same is happening in India today. There's still 600 million people on the land in India farming, and the plan is to push 500 million of them into cities. This is exactly the opposite of what is needed for food security. We need people on the land to feed more people better. In study after study from the UN it is clear, small ecological farms are in fact more productive than big monoculture farms.

Why did you film in Punjab?

Punjab was the breadbasket of India before the Green Revolution was introduced in the 1960s. Filming there was a way to see what the consequences of this system are - for the people, the farmers, the economy, the environment, the health of everyone. As you'll see in the opening scene of the film the landscape is dead, it literally looks like a war zone.

Why did you make a film on agriculture?

Most people don't realise the significance of agriculture in their lives, not only regarding their own health, but the health of everything in the environment. Politically we're all losing control of the ability to feed ourselves, and being made more and more dependent on big multi-national corporations whose only concern is their bottom line and to get bigger in an economy of eternal growth. The real cost of this corporate behaviour is absolute destruction of all that we depend on to survive.

Agriculture has the greatest impact on the planet, so when those of us who can, choose where our food comes from, that choice goes a long way. It's very empowering.

What was the most encouraging aspect of making the film?

That there is a better way. Ecological farming is a win win for everyone, it produces more and better food, better for the environment, better for the farmers economy, keeping farmers on the land, better food security.

There are so many people out there that don't want to feed the big corporate beast, who are passionate about ecological ways of growing and eating food, and by doing so they are in fact siding with life.

Why is the film called *The Worm is Turning*?

'The smallest worm will turn being trodden on' is an expression from a William Shakespeare play used to convey that even the meekest or most docile of creatures will retaliate or get revenge if pushed too far.

So that's the meaning, that corporations have pushed life to such an edge, that the real revolution, ecological farming, is starting to fight back by beginning to change everything, from the life in the soil to the life of the farmers.

SYNOPSIS / DESCRIPTION OF THE FILM:

[One Sentence]

THE WORM IS TURNING connects the dots on global food issues, shows the consequences of chemical agriculture, and that small ecological farms actually can feed *more* people better and at the same time restore the environment.

[One Paragraph A]

Agriculture has the greatest impact on the planet, so when those of us who can, choose where our food comes from, that choice goes a long way.

Ecological farming, or agro-ecology can in fact feed more people better. In study after study from the UN it is clear that small ecological farms are in fact more productive than big monoculture farms.

THE WORM IS TURNING connects the dots on global food issues from the World Trade Organization to earthworms in the soil, to how the organic movement came about. From World War 2 and on, from the USA to India, the film shows the consequences of chemical farming, and how corporate centralized control of the world's food production is destroying economies and the ecology of the world.

[One Paragraph B]

How did agriculture become agri-business?

Where do pesticides and nitrogen fertilizer come from?

What was the Green Revolution?

Why do we still have over a billion hungry people in the world when there is enough food to feed 11.5 billion people?

Why is food grown using chemicals cheaper than food grown organically?

Filmed on location in India, USA, Thailand, Indonesia and Australia, **THE WORM IS TURNING** shows with examples of ecological farming, the possibilities of producing food as well as restoring the environment. This means more jobs, jobs with meaning and connection to nature, and an agriculture that is truly sustainable.

Featuring Vandana Shiva, Joel Salatin, Helena Norberg-Hodge, Raj Patel, Winona LaDuke, Bob Cannard, Will Allen, Bhaskar Save, Meriel Watts, Devinder Sharma, P.V. Satheesh, Olivier De Schutter and many more.

CREDITS:

Filmed on location in Australia, India, Usa, Thailand, and Indonesia.

DIRECTED by Hilary Bain

PRODUCED by Asa Mark

EDITED by Asa Mark & Hilary Bain

CAMERA Asa Mark

SCRIPT CONSULTATION Valerie Morton

GRAPHICS & ANIMATIONS Rainforest Propaganda Ministry

ENCODING To The Point Productions

SOCIAL MEDIA Mona Smith

MUSIC

Chakra Widia

Bigbangfuzz

TRANSLATORS

Amanjot Kaur

Bharat Mansata

Gurpreet Rattu

Parmod Rana

P.V. Satheesh

Suresh Kumar

Vinod Bhatt

INTERVIEWS

Amar Singh Azad

Amanjot Kaur

Will Allen

Jeff Rutherford

Larry Korn

Devinder Sharma

Raj Patel

Bob Cannard

Joel Salatin

Helena Norberg-Hodge

Vandana Shiva

Meriel Watts

Amanjeet Sharma

Ratan Bhavati

Nirmal Singh

Chakra Widia

Tyrone Hayes

Alison Bleaney

Bhaskar Save

Brock Dolman

Rod Bruin

Winona LaDuke

P.V. Satheesh

Olivier De Schutter

Samamma Begari

Chandamma Bidakanng

Ratnamma Huggelli

Lakshamma

Megan Baxter

ARCHIVAL FOOTAGE and PHOTOS

Internet Archive
NASA imagery
Larry Korn

CREATIVE COMMONS ATTRIBUTION

Easter Island by Chmouel
Seney National Wildlife Refuge by Magnus Manske/Albert Herring
Naked lab rats by Steve Jurvetson
Operation commando buzz by William S. Phillips
A line of corn with weather front behind by Simon Koopmann
Peruvian corn by Jenny Mealing
Moka with baby gorilla by Sage Ross
Golden lion tamarin by Sue Neko
Anishinaabe Waki by Jaawano/Zhaawano

THANKS

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Gaurav Sahai
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Sheela Devi
Thakur Dass
Phoal Jahan
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Dinesh Kumar
Balram Singh
Bua and Ambibai
Suresh Save
Naresh Save
Gurmail Kaur
Sabjeet Kaur
Allan Savory
Derrick Jensen
Lierre Keith
Stephen Harrod Buhner
Trishuwa

David Theodoropoulos
Barbara Finnin
Quinisha Davis
Larry Davis
John Mellquist
Jo Immig
Mariann Lloyd-Smith
Judith and Michel Fanton
Maarten Stapper
June Jarvis
Catherine Ford
Matthew Jamieson
Tania Bruin
Kenrick Riley
Lance Powell
David Forrest
Lillian Forrest
Chris Ellery
Merline Olson

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who refuses to shut up.**