

SEEDS OF SUSTENANCE & FREEDOM



VS

SEEDS OF SUICIDE & SURVEILLANCE



RFSTE

Seeds of Sustenance & Freedom

VS

Seeds of Suicide & Surveillance

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Seeds of Sustenance & Freedom
vs
Seeds of Suicide & Surveillance

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Seeds of Sustenance & Freedom VS Seeds of Suicide & Surveillance

Seed is the basis of food and agriculture.
Seed Sovereignty is the foundation of food sovereignty.
Corporations that made war chemicals introduced these chemicals as agrichemicals.
In the first Green Revolution they changed the seeds to adapt to chemicals.
In the second Green Revolution they tried to own and control the seed itself through genetic engineering and patents.
There is now an attempt to introduce the third Green Revolution with total control over the seed through the convergence of industrial breeding and surveillance digital technologies.
What is at stake is our biodiversity and our freedom.

PART I

Seeds of Chemicalisation: First “Green Revolution”

In the 1960s, when the Green Revolution was imposed on the Third World, we were told without chemicals and the “miracle seeds” of Green Revolution we will starve.

The rhetoric was “chemicals will feed us”.

The first Green Revolution was the re-colonization of India’s food and agriculture. Punjab as the first colony of this Green Revolution was forced to adopt chemicals and dwarf varieties adapted to chemicals.

Through the seed, the corporations and their war chemicals completely destroyed peaceful ecological agriculture in Punjab.¹ Seeds of “dwarf varieties” were bred to withstand high doses of fertilisers. They were falsely named “High Yielding Varieties” (HYVs) when they were merely “High Response Varieties” that responded to chemicals as Dr. Palmer concluded in the United Nations Institute for Social Development (UNRISD) study on the impact of seeds.

As discussed in the book “The violence of the Green Revolution”²:

“The dwarf gene was essential to the technological package of the Green Revolution, which was based on intensive inputs of chemical fertilizers. The taller traditional varieties tended to ‘lodge’ with high applications of chemical fertilizers because they converted the nutrients into overall plant growth. The shorter, stiffer stems of dwarf varieties allowed more efficient conversion of fertilizer into grain...The linkage between chemical fertilizers and dwarf varieties that were established through the breeding programs of CIMMYT and IRRI created a major shift in how seeds were perceived and produced, and who controlled the production and use of seeds.”

The illusion that was created was that the Green Revolution produced more food. However HYVs seeds replaced the diversity of indigenous seeds bred for nutrition, taste and resilience. Rice and wheat

¹For more, see Shiva, V. (1991). The Violence of the Green Revolution: Third World Agriculture. Ecology and Politics. London: Zed Books.

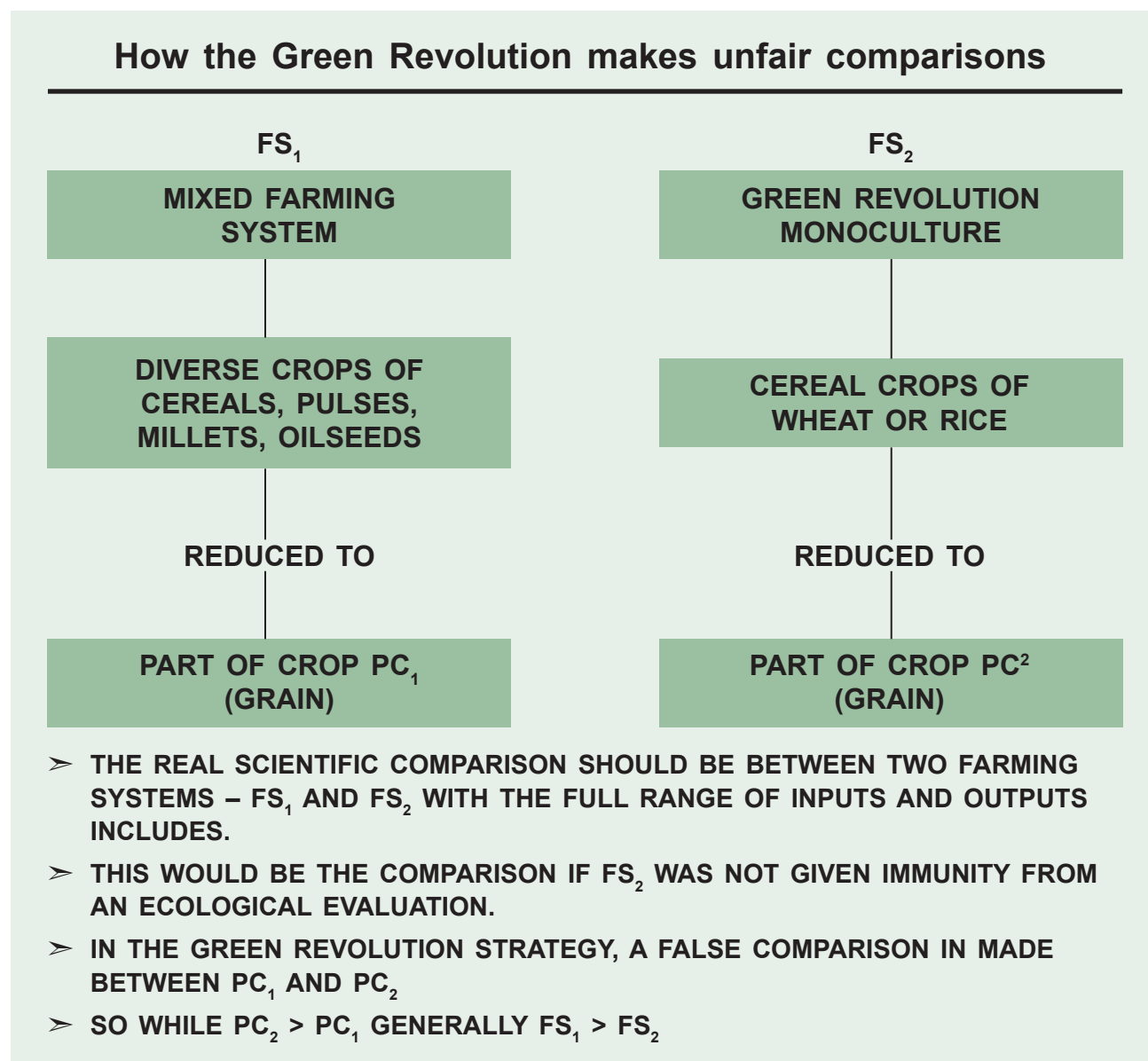
²Shiva, V. (1991). The Violence of the Green Revolution: Third World Agriculture. Ecology and Politics. London: Zed Books.

monocultures increased at the cost of pulses, oilseeds, millets, vegetables, fruits. Punjab was made the “bread basket” to supply rice and wheat to all of India, but Punjab was destroyed because the Green Revolution destroyed soil, water and biodiversity which are the nature’s capital on which food production depends.

And more food and nutrition was not produced. What what increased were rice and wheat as commodities. And the metric of “Yield per Acre” was used to hide true productivity.

“Yield per Acre “measures commodities extracted from farms, not the health of the farm, the farmer, or the food.

The false claim that ‘Chemicals produce more food and are necessary to feed the world is based on the claim of productivity gains and the higher “yield per acre” of the Green Revolution, but as the *Violence of the Green Revolution and Health Per Acre*³ show us, this was just a false comparison.



Source: Shiva, V. (1991). The Violence of the Green Revolution. p 69.

³Shiva, V., & Singh, V. (2011). *Health Per Acre: Organic Solutions to Hunger & Malnutrition*. Navdanya/Research Foundation for Science, Technology & Ecology.

The real metric is *nutrition per acre or health per acre* in a biodiversity paradigm, not yield per acre in the paradigm of a *Monoculture of the Mind*.⁴ When one looks at the system holistically instead of looking at it through the lens of reductionism one instantly understands the lies and the myths sold to us by industrial agriculture where the emphasis is on the yields of individual crops and not on the output of the food system and its nutritional value. Because all industrial agriculture produces is hunger and malnutrition.

Navdanya's study shows that a biodiverse farming system can feed two times the population of India.⁵

The Poison Cartel (the companies having the monopoly on seed industry as well as the pesticide industry including companies like Bayer- Monsanto, ChemChina-Syngenta, Dow-Dupont, among others) changed the life affirming seeds of biodiversity into chemically responsive, life deadening seeds and monocultures. And now they are using the crisis they have created to impose new mono cultures of Monsanto's hybrid maize.

Problems caused by the Green Revolution: Creating New Market Opportunities for the Poison Cartel

The dwarf varieties created in the first Green Revolution, and spreading ever since, need chemicals to respond to them. Chemicalisation increases water use and is the primary reason India is facing a Water Emergency. The seeds of the Green Revolution have also resulted in cancer reflected in the cancer train of Punjab.

The monocultures of rice and wheat did not just increase chemicalisation but also promoted mechanization. Combine harvesters were imposed on farmers to harvest crops because this agriculture thrived on uniformity and large scale monoculture production. Because of the combine harvester being used, only the grain gets harvested and the stubble is left on the ground. This stubble then has to be burned.

Furthermore, in the past couple of years stubble burning has been delayed to late October in the Northern states of India, particularly Punjab and Haryana. The delay to clear the fields was imposed on the farmers by the Government, by introducing the law, Punjab Preservation of Subsoil Water Act in 2009. According to this law, farmers can no longer sow rice in April, but have to wait until the middle of June to do so. The law was pushed to prevent the depletion of groundwater through rice cultivation. BS Bains, director, Punjab Agriculture Department said: "We are promoting short-duration paddy varieties developed by Punjab Agriculture University over late-maturing PUSA varieties that require more water and leave heavier stubble."

The pressure to move away from rice cultivation to 'crop diversification' was imposed by the United States Agency for International Development (USAID). The primary beneficiary of USAID's purported solution for Punjab's problems was Monsanto. According to their solution, farmers need to stop growing rice and replace it with Monsanto's genetically modified (GMO) maize. In 2012, the then Punjab Chief Minister asked Monsanto to set up a research centre for creating maize seeds and announced plans to reduce the area under the cultivation of rice by around 45% in order to grow maize. Monsanto now offers the replacement of rice by its GMO crops as a solution that will increase the level of subsoil water.

Punjab was not a rice growing region traditionally. It was forced to grow rice because of the Green Revolution. Now rice and farmers are being criminalised, and the negative impact of the Green Revolution is being used to create new market opportunities for corporations like Monsanto.

The problems created by the very same industrial agriculture are being used to shift the discourse to now blame the farmers instead of holding the corporations and their industrial agriculture responsible.

⁴ See Shiva, V. (1993). *Monocultures of the mind: Perspectives on biodiversity and biotechnology*. Palgrave Macmillan.

⁵ Shiva, V., & Singh, V. (2011). *Health Per Acre: Organic Solutions to Hunger & Malnutrition*. Navdanya/Research Foundation for Science, Technology & Ecology.

Corporate Globalization & Pepsi's Entry in India

The PepsiCo project in Punjab was introduced as a solution to the Punjab crisis in 1984. PepsiCo promised to bring 100 years of spring.

Today, Punjab has the promise of a hundred years of spring.



Today, the day of Baisakhi, the harvest festival, H.E. Shri Siddhartha Sankar Ray, the Governor of Punjab, will lay a foundation stone at village Channo in the district of Sangrur. This stone will grow into a future of plenty for the farmers of Punjab. The Pepsico-Voltas-Punjab Agro venture will generate ideas to grow better fruits and vegetables and create an eager marketplace for our high quality produce. On this harvest festival, together we will sow the seeds of prosperity.

PEPSI FOODS LIMITED

Source: Shiva, V. (1991). *The Violence of the Green Revolution: Third World Agriculture. Ecology and Politics.* London: Zed Books. Pg. 194.

As goes with all colonial projects, even this one was pegged as a “peace program” while in reality it only caused more violence on our land and on our bodies.

This project was a collaboration between Punjab agroindustries, Voltas and PepsiCo. The four activities which were covered by the project were: agro-research and biotech seeds, potato and grain processing plant, fruit and vegetable processing unit and the soft drink unit.

Integral to this project was the development of “improved” varieties of potato and tomato. But “improved” is always contextual. Here it meant making these varieties more appropriate to PepsiCo’s processing plant.⁶ This is how the processed varieties replaced the native varieties.

The propaganda that was spread was: “yields in India are substantially lower than international standards.” And this was used to create a “need” for PepsiCo’s project. It claimed that the production would increase to 30 tonnes per hectare. But Indian farmers were already producing yields of more than 40 tonnes to 60 tonnes in Gujarat.⁷

This was the Pepsi project: completely denying the knowledge and expertise of Indian farmers to make itself look indispensable.

⁶Shiva, V. (1991). *The Violence of the Green Revolution: Third World Agriculture. Ecology and Politics.* London: Zed Books. pg. 202.

⁷Ibid. Pg. 203.

This project completely twisted the logic of comparative advantage. Crops for which we had a unique climatic advantage in growing and for which we have major domestic markets such as coconut, spices and pulses were declared “non-competitive”. Such a calculus only suited the global agribusinesses not the Indian farmers or Indian consumers.⁸ The strategy was to give up the crops that we have evolved through our efforts over millennia and shift to crops for which we will need to depend on imported germplasm and will have to sell on foreign markets.⁹

This was contract farming where the multinationals in agroprocessing industry make one sided contracts with small farmers and the farmer is held liable for carrying out the entire production, paying wages, meeting fertilisers and pesticide costs etc. The contract stated that the company reserved the right to reject the crop in case quality standards are not met by the producer or when the harvested seed is damaged and becomes qualitatively unacceptable due to rains or disease. Even in these cases, the farmer was not allowed to sell the seed outside, he or she had to sell it to the company. The company specified that its decision regarding the seed quality ‘will be final and binding on the producer’ and in cases of doubt, farmer was left with no recourse to any other dispute settlement option.¹⁰

Contract farming for the agro-processing industry was a shift from food crops to cash crops. This weakened the food security even more. The crop and the variety to be planted were determined by the corporation with the sole aim of making profits and not feeding the hungry.¹¹

PepsiCo’s entry into the Indian processed food sector was accompanied by a tremendous pressure for new agricultural technology. This resulted in the inception of the corporation’s tomato paste plant in Zahura, Hoshiarpur district in Punjab which till 1993 had processed over 65,000 tonnes of tomato, of which more than 70% had been exported to Japan.¹²

Pepsi suggested the idea of contract forming in Punjab, with the main objective being to create a surplus of tomato in the market, so that the corporation could meet its plant’s requirements at low rates.¹³ Creating a surplus through contracting ensured that the raw material can be purchased at a predetermined price.

However, the experiment proved disastrous for both Pepsi and the contract farmers. Pepsi gave them the seedlings as a loan. The farmers had to use higher doses of fertilizers and pesticides, again supplied by the company. Pepsi’s rates for the tomato were lower than market rates. The company paid Rs. 0.80 per kg in 1993 while the market rates were Rs. 2 per kg.¹⁴ When the cost of seedlings and the other inputs was subtracted, the farmers were left with nothing, falsifying the myth even more that industrial agriculture served the farmers’ interest.

Furthermore, rather than creating a surplus to meet local demands and maintaining low prices for themselves, Pepsi’s tomatoes were rejected by the people as the skin was too hard for domestic use.¹⁵ Hard skin is a requirement for transportation and for agroprocessing. In 1994, the Hoshiarpur mandis were piled high with tomatoes no one wanted and the price of tomatoes dropped from Rs. 2 per kg to as low as Rs. 0.50 per kg.¹⁶ The farmers who started cultivating hybrid tomatoes in the western region had initial incomes of Rs. 30,000 per hectare but later as the technology failed and pests evolved resistance, their incomes fell from Rs. 30,000 to a few hundred rupees.¹⁷

⁸Globalization of agriculture, food security and sustainability. *Sustainable Agriculture and Food Security, The Impact of Globalisation*, Sage Publications India Ltd, New Delhi. Pg. 21.

⁹Ibid.

¹⁰Globalization of agriculture, food security and sustainability. *Sustainable Agriculture and Food Security, The Impact of Globalisation*, Sage Publications India Ltd, New Delhi. Pg. 48.

¹¹Ibid. at pg. 49.

¹²Ibid. at pg. 50.

¹³Ibid. Pg. 50.

¹⁴Ibid. Pg. 50.

¹⁵Ibid. Pg. 50.

¹⁶Ibid. Pg. 51.

¹⁷Shiva, V. (1991). *The Violence of the Green Revolution: Third World Agriculture. Ecology and Politics*. London: Zed Books. Pg. 221.

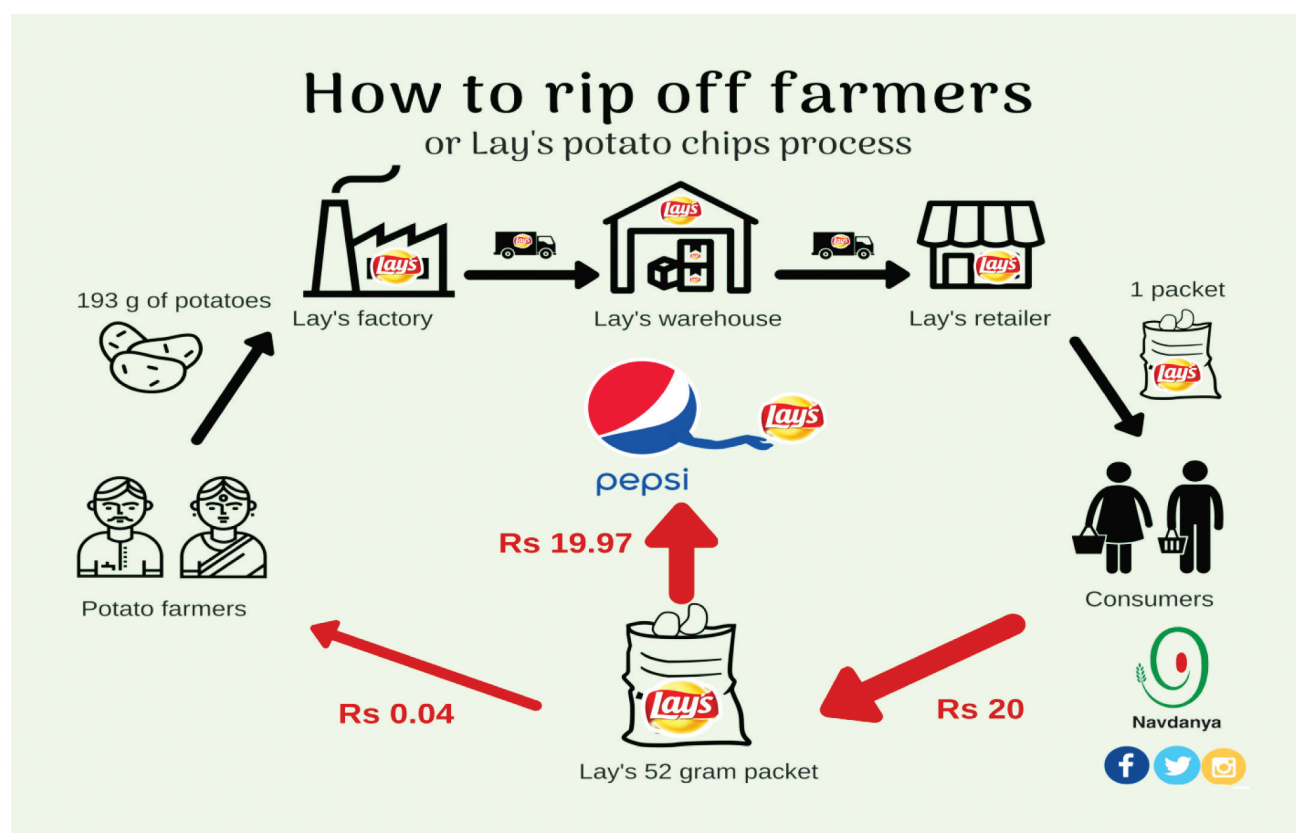
By early 1996, the Pepsi tomato experiment had failed and Pepsi sold out its plant to Brooke Bond.

This project harmed the land and its people. It never solved the hunger crisis. It impacted the availability of staple food as more and more land was diverted to fruits and vegetables for export while hunger and food scarcity continued to be a reality.

Exporting potato chips was never going to feed the hungry in India.

Thus, the Pepsi solution to the 'failed Green Revolution' failed in its promise once again. Neither did it bring more food nor did it bring more prosperity for the farmers. It only brought more hunger for our people and more debt for our farmers.

In spite of the Punjab failure, the Pepsico model of growing tomatoes and potatoes for the junk food industry as a raw material instead of staple foods for people and for the food security of the country, was imposed nationwide through the World Bank Structural Adjustment of 1991, and the economic reforms since then.¹⁸ Pepsi potatoes have spread across the country and with monocultures of potatoes grown as raw material, prices of potatoes have collapsed.



Source: Shiva, V and Shiva, K. 2018. The Future of our daily bread: Regeneration or Collapse. Navdanya International / Research foundation for science, technology and ecology.

¹⁸Shiva, V. (2001). *Yoked to death: globalisation and corporate control of agriculture*. Research Foundation for Science, Technology, and Ecology; Shiva, V. (2002). Globalization of agriculture, food security and sustainability. *Sustainable Agriculture and Food Security, The Impact of Globalisation*, Sage Publications India Ltd, New Delhi, 64; Shiva, V., Jafri, A. H., & Jalees, K. (2003). *The mirage of market access: how globalisation is destroying farmers lives and livelihoods*. Navdanya.

Continuation of PepsiCo's Colonialist Arrogance

Protection of plant varieties and farmers' rights act (PPV&FRA) recognizes farmers as the breeders of seed. It faced its biggest test in its implementation phase of nearly a decade and a half, when PepsiCo India initiated legal proceedings against four farmers in Gujarat for "illegally" growing its potato variety registered under the PPV&FRA.

The company applied for the registration of two hybrid potato varieties FL 1867 and FL 2027 in February 2011. These varieties were registered under the PPVFRA in February 2016 for a period of 15 years. PepsiCo marketed the latter variety under the trademark FC-5, and filed a 4.2 crore lawsuit against farmers of Gujarat.

PepsiCo withdrew its claims with the raising of Section 39 of the PPV&FRA.

Section 39: Farmers' right.—Notwithstanding anything contained in this Act,—a farmer shall be deemed to be entitled to save, use, sow, resow, exchange, share or sell his farm produce including seed of a variety protected under this Act in the same manner as he was entitled before the coming into force of this Act.

Once again, PepsiCo in April 2019, sued a total of 4 farmers for 10 million rupees each in Gujarat for growing a variety of potatoes, claiming infringement of intellectual property rights under the Protection of Plant Varieties and Farmers Rights Act, 2001 for cultivating their proprietary FC5 variety of potatoes that are used to make Lay's chips.

On May 2, 2019, due to section 39 and having no ground in law to sue the farmers, PepsiCo withdrew its lawsuit against the farmers in Gujarat.

PART II

Seeds from the Poison Cartel: GMO's & the Second “Green Revolution”

Monsanto's GMO colonisation

In the 1990s we were told we would starve without GMOs brought to us by the same Poison Cartel that had introduced chemicals in agriculture. GMOs are not a substitute for chemicals, they have increased the use of toxic chemicals like Roundup, and added new risks of their own. There was an exaggerated claim that GMOs would remove all limits of the environment, grow food in deserts and toxic dumps. But the real reason GMO's were introduced was to get patents on seeds.

Now the rhetoric had become “GMOs will feed us”.

In India, movements including Navdanya worked with the parliament to ensure that when we implemented the WTO's TRIPS agreement, we used the exemption allowed in Article 27.3 (b). As a result, section 3(j) of our patent law now excludes seeds from patentability.

“Section 3(j): plants and animals in whole or any part thereof other than micro-organisms but including seeds, varieties and species and essentially biological processes for production or propagation of plants and animals.”

Monsanto repeatedly tries to challenge this article but has failed.

We were sold “fake seeds” in the form of GMOs because the cartel transformed the seed from something alive to something dead. It did so, either through legal instruments like patents, or through biological methods. It transformed the seed from a renewable, self organised living system which farmers can freely save and share, into a non renewable, genetically engineered, patented commodity which cannot be saved or shared.

Integral to this second Green Revolution was Monsanto illegally introducing Bt Cotton in India (this was later approved).¹⁹

The Poison Cartel genetically engineered seeds to take patents which in turn further the creation of a monopoly on the seed. Nearly 85% of the more than 300,000 farmers suicides are in the cotton areas where Monsanto established a 99% monopoly.²⁰

The foundation of this monopoly was created by selling the Indian farmers three basic frauds:

Fraud 1: Monsanto cheated Indian farmers by claiming that its Bt cotton will control the bollworm. The claim of Bt cotton being a pest control technology has been proven false with the emergence of resistant pests and farmers are being forced to use pesticides. Farmers are now dying due to pesticide poisoning.

Fraud 2: the claim that GMO Bt crops are safe for biodiversity and the environment, inspite of the scientific knowledge that GMO Bt is not the same as natural Bt. Pollinators have been killed because of high dose supertoxins in Bt crops, which have also led to poisoning the soil and killing soil organisms threatening the very foundation of agriculture and food security.

Fraud 3: The false claim that Monsanto had a patent on Bt cotton seed, locking Indian companies through licensing arrangements, and collecting illegal royalties from farmers, until the Seed Price Control order of 2015 which started to regulate prices.

Insipite of not having a patent, Monsanto started to collect royalties on its illegally introduced Bt cotton. It collected an upfront, one time non-refundable fee of Rs 50 lakh from each licensee and a recurring

¹⁹For more, See Shiva, V. et. al. 2018. Origin: The Corporate War on Nature and Culture. Nataraj Publishers.

²⁰Shiva, V. et. al. 2018. Origin: The Corporate War on Nature and Culture. Nataraj Publishers; Shiva, V., Jafri, A. H., Emani, A., & Pande, M. (2000). Seeds of suicide. RFSTE, New Delhi.

fee. Since it did not have a patent, it cooked up a category called “Technology Trait” to collect a “Trait Fee”, just another name for royalty. This royalty is finally extracted from poor farmers.

India’s peasants are too small and too many to do contracts for a non existant IPR. So Monsanto locked in 28 Indian seed companies to collect royalties on Monsanto’s behalf. Such agreements are illegal because when Monsanto locked Indian companies into these agreements to extract royalties and trait fees, it had no approval for commercial planting. And it did not, and cannot have patents on seed.

It transpires from the facts placed before the competition commission of India (CCI) that the fixation of trait value has been a matter of dispute/litigation since 2005. It is alleged that in the year 2005, the trait value fixed by Mahyco-monsanto was Rs.1250/- per packet for BG- I which led to high value of Bt Cotton seeds manufactured using the said technology i.e. Rs.1700/- – Rs.1800/- per packet. This was allegedly very high in comparison to the price of non-Bt cotton seeds which were available for Rs.300/- per packet.” (Ref. Case No. 02/2015 & Case No 107/2015 Page 4 of 26).

Since the legalisation of Bt Cotton in 2002, Monsanto has looted Rs 7000 crore from the poor Indian cotton farmers and is directly responsible for pushing Indian farmers into debt and suicide. Since ’95, over 3,10,000 have committed suicide most of whom are from the cotton belt of India.

The Centre issued ‘Cotton Seed Price Control Order’ (CSPCO) to control prices of cotton seeds by fixing a uniform Maximum Retail Price (MRP) from March 2016.

The government has steeply reduced the royalty component from Rs. 183.46 that Monsanto and Mahyco Monsanto charge the farmers through seed companies to Rs 49. Trait value paid to Monsanto comes down by 73%.

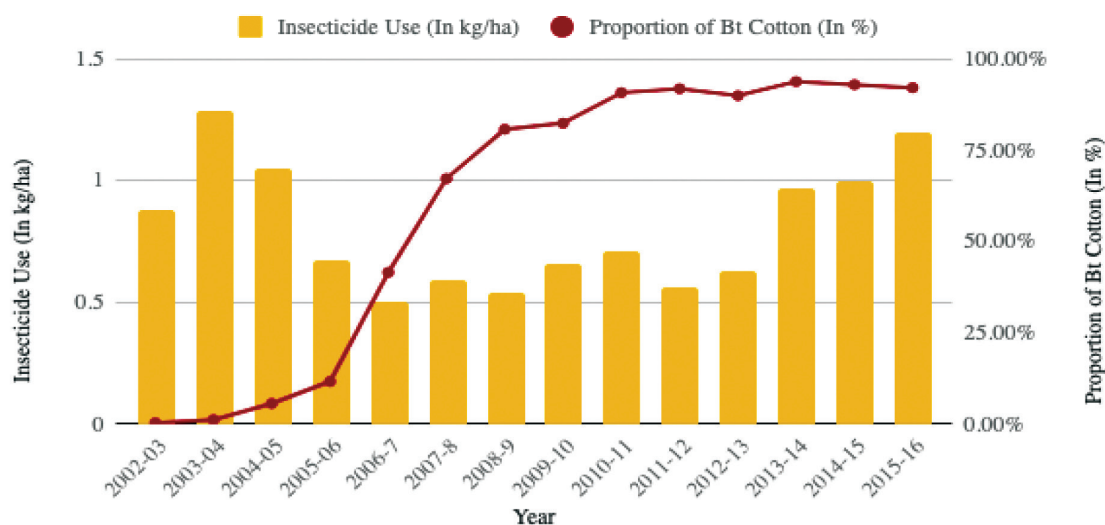
Monsanto immediately tried to challenge the Seed Price Control Order. Navdanya intervened in the Karnataka High Court and the case was dismissed (writ petition 15173 and 15174 of 2016 in Karnataka High Court).

In 2015, the Government of India initiated a case in the CCI on Monsanto’s monopoly in the cotton seed sector. The CCI observed that there was *prima facie* evidence of Monsanto’s monopoly and started an investigation. Monsanto was imposing: excessive trait fee, unfair clauses in the sub-licensee agreements leading to a monopoly (Case No. 02/2015 & Case No 107/2015).

In 2019, CCI concluded in its findings that Mahyco Monsanto Biotech Ltd (MMBL) has abused its dominant position in the market for Bt Cotton technology by charging unfair licence fee and entering into pricing agreements directly aimed at overcharging farmers who use Bt Cotton seeds.

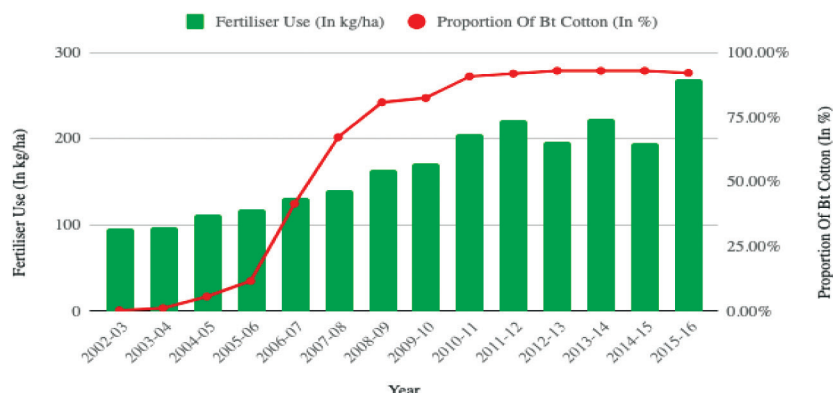
Farmers deaths in Vidharba have resulted from Monsanto collecting illegal royalty and trapping farmers in debt, pushing them to suicide, establishing monopoly, selling Bt Cotton with the false claim that it will control pests.

Insecticide Use For Cotton Cultivation In India



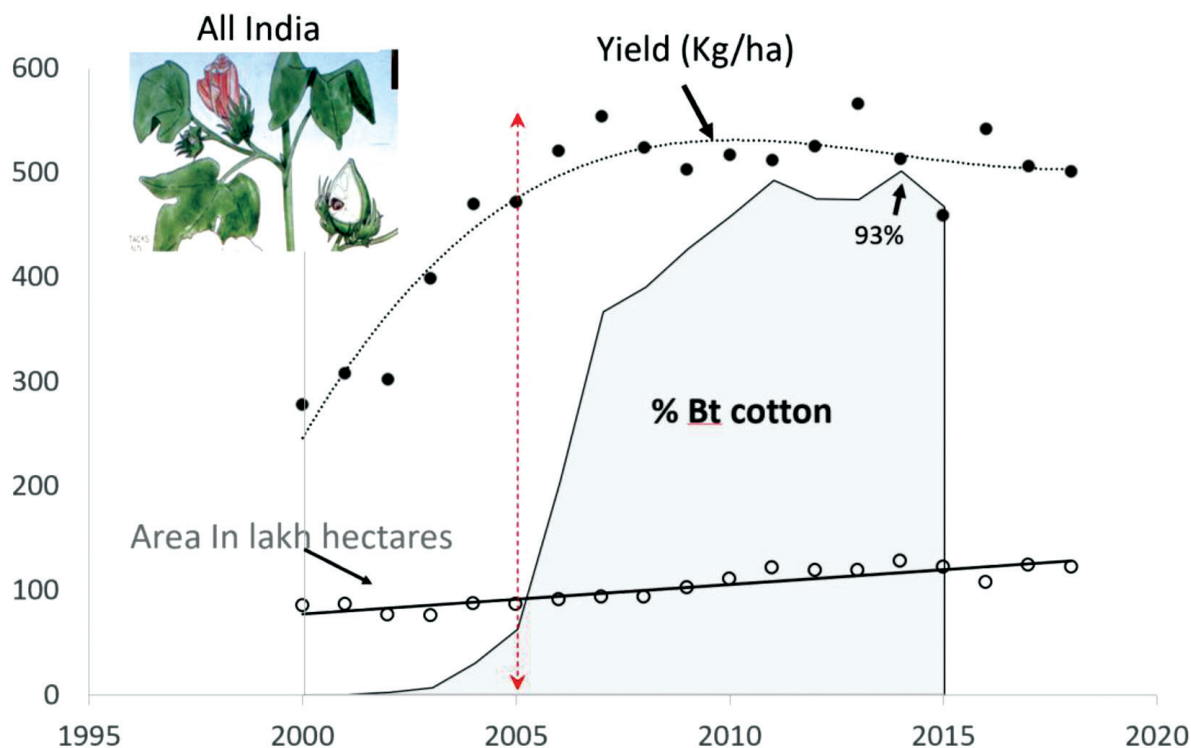
Fertiliser use for cotton rose 128% from 118 kg/ha in 2005-06--when Bt Cotton's proportion in overall cotton was 11.7%--to 270 kg/ha in 2015-16 (latest year for which data are available), when Bt Cotton accounted for 83.33% of India's cotton.

Fertiliser Use For Cotton Cultivation In India



Source: [Cotton Association of India Weekly Publication](#) (December 2016), [EANDS](#), News reports from [Reuters](#), [Financial Express](#) (minor differences in data in different publications)

* Fertilizer usage for 2014 is based on average estimate from Directorate of Economics and Statistics, Ministry of Agriculture and Farmers Welfare, Govt of India



Data Sources: *Ministry of Agriculture. **Ministry of Textiles ***Kranthi (2014)

Source: Press Briefing GMO Bt cotton has failed transition to climate resilient Agroecology is the Imperative: For India's present & future biosecurity, 6th September 2019 by Aruna Rodrigues and Dr Vandana Shiva

Monsanto's highest crime is robbing Indian farmers of their lives by pushing them to commit suicides through a combination of factors including fraudulent claims, and debt resulting from collection of illegal royalties for seeds even though patents on seeds are not allowed in India under Section 3(h) and Section 3(j) of India's Patent Act.

Farmers Suicides in India 1995-2016

Year	Yearly total for All India Suicides
1998	16,015
1999	16,082
2000	16,603
2001	16,415
2002	17,971
2003	17,164
2004	18,241
2005	17,131
2006	17,060
2007	16,632
2008	16,196
2009	17,368
2010	15,964
2011	14,027
2012	13,754
2013	11,772
2014*	5,660*
2015**	8,007**
2016(P)	1130

* Total 1995-2014 = 3,02,126, ** Total 1995-2015 = 3,10,133,

(P) Provisional

* The actual figure for 2014 is 12,360, as NCRB did not include agricultural labourers and the actual figure for 1995-2014 is 3,08,126.

** The actual figure for 2015 is 12,602 as NCRB did not include agricultural labourers and the actual figure 1995-2015 is 3,20,728,.

Thus, the actual figure for farmers in 2016 is 3,32,098.

Since 2016 the data on farmer's suicides is not available.

Farmers Suicides in Maharashtra from 1995-2016

Year	Farmers Suicide in Maharashtra
1995	1,083
1996	1,981
1997	1,917
1998	2,409
1999	2,423
2000	3,022
2001	3,536
2002	3,695
2003	3,836
2004	4,147
2005	3,925
2006	4,453
2007	4,238
2008	3,802
2009	2,872
2010	3,141
2011	3,337
2012	3,786
2013	3,146
2014	4,004
2015	4,291
2016	3,661
Total	72,705

In the last few decades Maharashtra has witnessed 84,700 farmers suicides. 11, 995 farmers' suicides have taken place in the last three years.

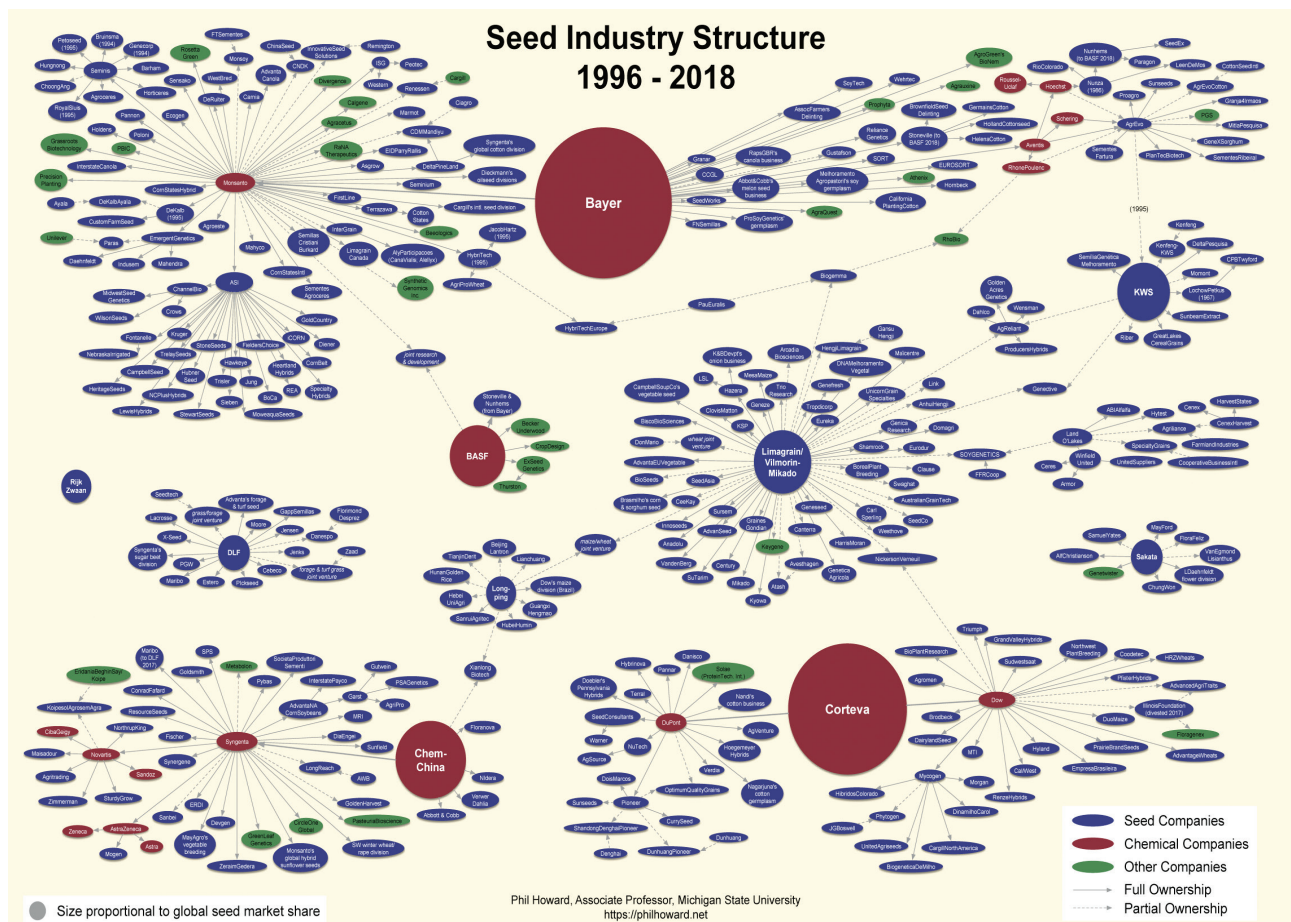
In 2017, Monsanto was caught illegally spreading Roundup Ready Bt Cotton in Vidharba without commercial approval, adding the disaster of Roundup to the Bt cotton disaster. Roundup is a probable carcinogen according to WHO. In the US thousands of cancer victims are suing Monsanto.

Roundup Ready GMOs have led to an explosion of the use of Roundup, a known carcinogen. It has also led to a kidney failure, and destruction of gut bacteria, affecting the healthy functioning of the second brain, and negatively affecting neurological functions of the brain.

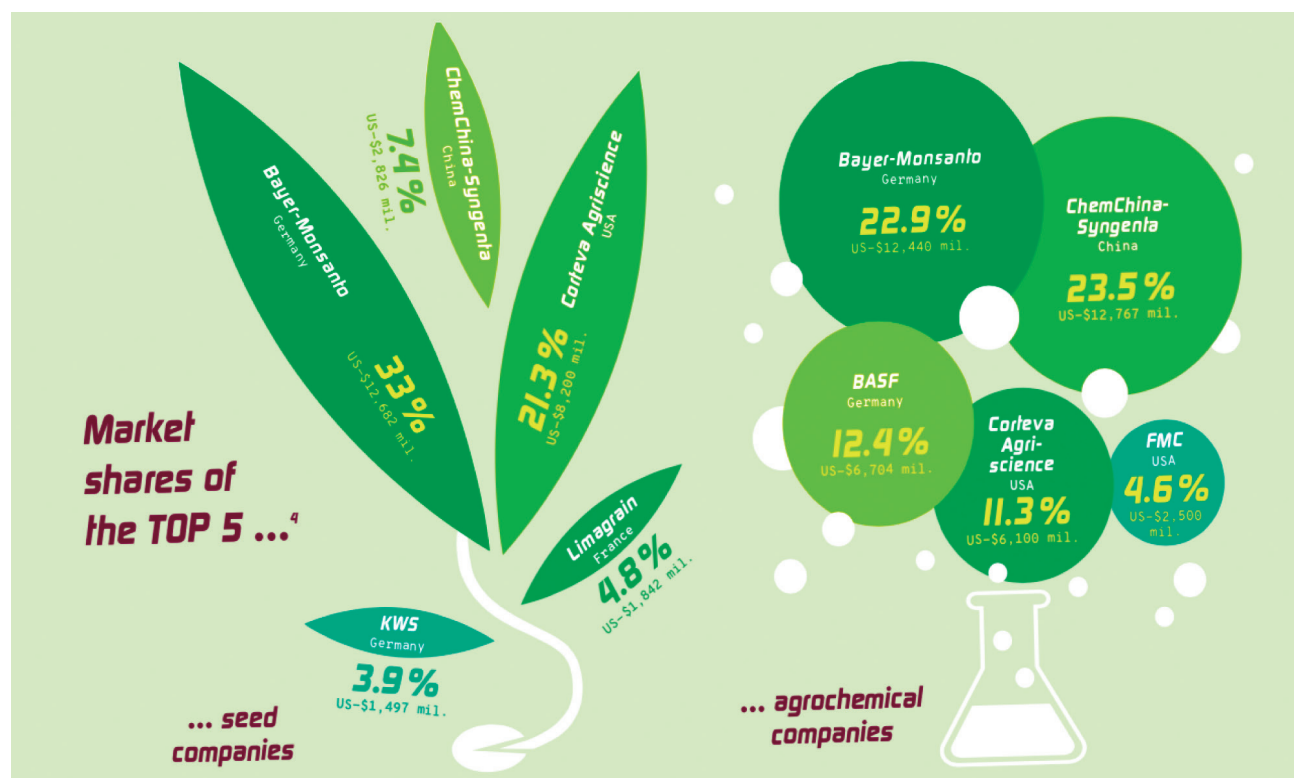
This is not a food production system. It is a disease producing system.

Seed Monopoly of the Poison Cartel

Inspite of our laws, the competition commission is still unable to stop the seed companies who are also the pesticide companies, from consolidating and creating even more unequal markets.



Source: www.philhoward.net



Source: Pat Mooney, ETC Group. (2018). Blocking the chain: Industrial food chain concentration, Big Data platforms and food sovereignty solutions.

As Dan Barber, put it recently in a New York Times article:

“Just 50 years ago, some 1,000 small and family-owned seed companies were producing and distributing seeds in the United States; by 2009, there were fewer than 100. Thanks to a series of mergers and acquisitions over the last few years, four multinational agrochemical firms — Corteva, ChemChina, Bayer and BASF — now control over 60 percent of global seed sales.”²¹ He adds, “The same seed companies that now control more than 60 percent of seed sales also sell more than 60 percent of the pesticides.”²²

He sums it up aptly when he says that real problem with these seed corporations (the Poison Cartel) is that “they are failing to deliver what growers need to grow and what we want to eat”.²³

²¹ Barber, Dan. 2019. “Save Our Food. Free The Seed”. New York Times. Available at: <https://www.nytimes.com/interactive/2019/06/07/opinion/sunday/dan-barber-seed-companies.html>. Accessed on 19th August 2019.

²² Ibid.

²³ Ibid.

PART III

Seeds of Surveillance Capitalism: The Third “Green Revolution”

The third Green Revolution is the colonization of our seeds and agriculture through digitalization and seeds of surveillance. This is the surveillance capitalism entering agriculture.

First chemicals.

Then GMOs.






























































Now we are being told ‘Big Data’ or ‘surveillance’ will feed us.

Henry Kissinger in his infamous speech during the Vietnam War said: “food can be used as a weapon”. Vandana Shiva has said: “Seed is the new weapon”. This has never been more true.

The new colonisation of seed and agriculture by Gates and the Poison Cartel

The next step of the seed slavery is being planned by the Poison Cartel, the surveillance capitalists, including billionaires like Bill Gates, through the imposition of digital and surveillance technology.

The most active investors in “Agtech” which is another name for surveillance capitalism in agriculture are given in the table below:

MOST ACTIVE AGTECH INVESTORS													
FIRMS RANKED BY UNIQUE AGTECH INVESTMENTS, 2013 - 2017 YTD (11/2/2017)													
Investor	Rank	Companies											
Y Combinator 	1	TL Biolabs 	PickTrace 	Raptor Maps 	Edyn 	TenAxon 	FarmLogs 	Vinsight 	Modular Science 	WorldCover 	Cowlar 		
Monsanto Growth Ventures 	2	AgSolver 	HydroBio 	Resson 	VitalFields 	Blue River Technology 	FarmLead 						
Middleland Capital 	2	Benson Hill Biosystems 	Conservis 	AAD 	Mercaris 	AeroFarms 	Arable Labs 						
Syngenta Ventures 	4	Phytech 	Agworld 	S4 	Blue River Technology 	Premier Crop Systems 							
SproutX 	4	Farmapp 	AgriLedger 	Thingc 	IoTAg 	Tie Up Farming 							
SP Ventures 	4	AgroSmart 	InCeres 	Agrowin 	AEGRO 	Bart Digital 							
Omnivore Venture Partners 	4	Stellapps 	Eruvaka Technologies 	FrontalRain Technologies 	GramCover 	MITRA 							
Google Ventures 	4	FBN 	Granular 	Climate Corporation 	Bowery Farming 	Abundant Robotics 							
Techstars 	4	Platform 	Freight Farms 	Avenus 	Smallhold 	Farmcrowdy 							

 CBINSIGHTS

Source: CBinsights. 2017. The Most Active Investors In Ag Tech. Available at: <https://www.cbinsights.com/research/agriculture-tech-top-investors/>. Accessed on 28th august 2019.

As written in the book on surveillance capitalism by Shoshana Zuboff, a Professor Emerita at Harvard Business School:

“Surveillance capitalism is not a technology; it is a logic that imbues technology and commands it into action.”²⁴

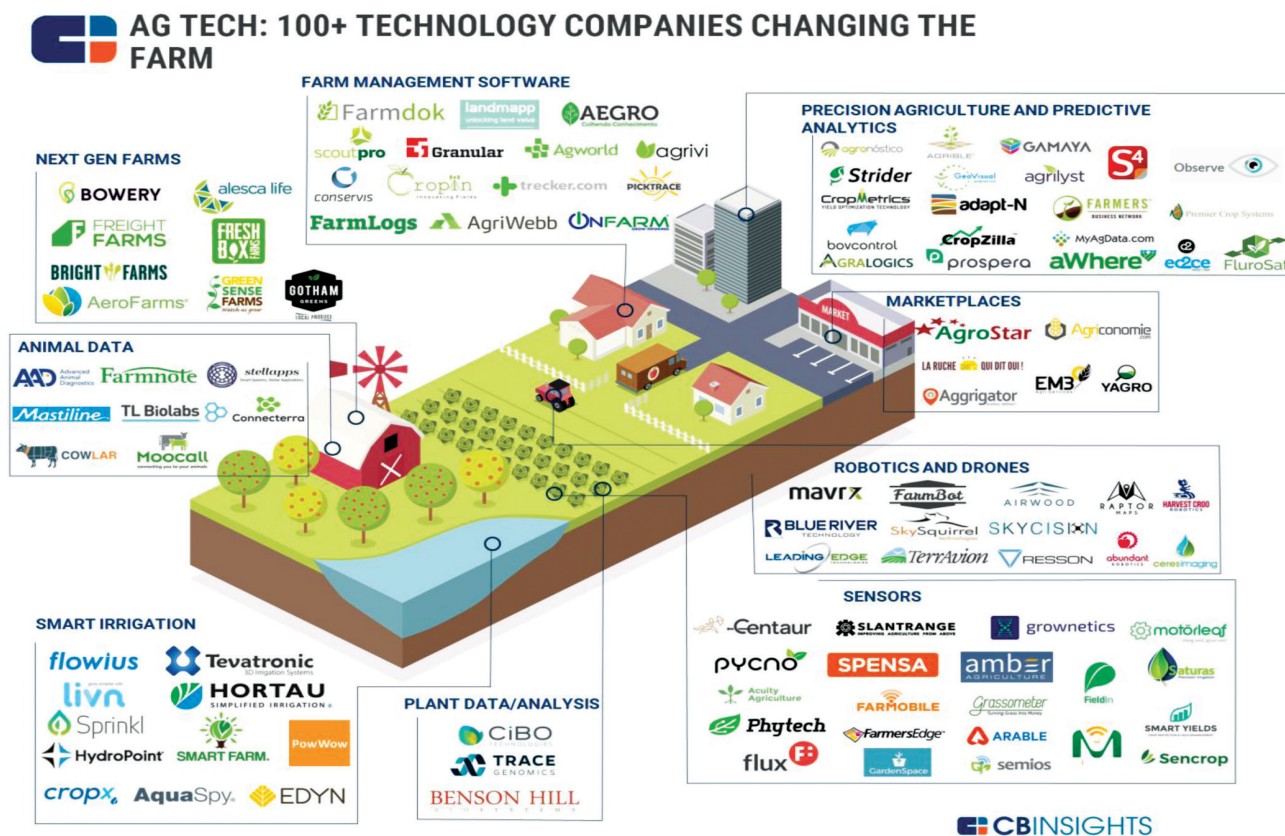
It is a tool of control.

And as John Hamer, managing director of Monsanto Growth Ventures (Monsanto’s venture capital arm) says:

“if you think about it, there are only two people on earth that need to know a lot about remote sensing technology – Monsanto and the CIA.”²⁵

One sees here similar forces at play as in the days of the first colonialism: imposing the colonisers’ religion on the “barbarians” was central to the “civilising mission”. Today, imposing the colonisers’ religion of digital technology on our diverse food systems, and the diverse knowledges and technologies on which they are based, is central to the “civilising mission” in today’s digital colonisation.²⁶

When technology is no longer seen as a tool to be assessed, chosen, adopted or rejected, but as a religion, as a civilizing mission, to be forced undemocratically on people, and when means for money making are elevated to human ends, beyond ethical, social, ecological and democratic assessment, we



Source: CBInsights. 2017. The Ag Tech Market Map: 100+ Startups Powering The Future Of Farming And Agribusiness. Available at <https://www.cbinsights.com/research/agriculture-tech-market-map-company-list/>. Accessed on 28th august 2019.

²⁴Zuboff, S. (2019). *The age of surveillance capitalism: The fight for a human future at the new frontier of power*. Profile Books. Pg. 15.

²⁵Trotter, Greg. (2016). Monsanto venture capital group brings tech-world approach to agribusiness. Chicago Tribune. Available at: <http://www.startribune.com/monsanto-venture-capital-group-brings-tech-world-approach-to-agribusiness/407653476/> as cited in Shiva, K and Shiva, V. 2018. Oneness vs 1%: shattering illusions, seeding freedom. Pg. 79.

²⁶Shiva, V and Shiva, K. (2018). *The Future of our daily bread: Regeneration or Collapse*. Navdanya International / Research foundation for science, technology and ecology.

have Re-colonisation in a modern garb. But then, as now, exterminating the diversity of life, of cultures, of knowledges, of economies, sovereignties, democracies through violence, for economic and political power is the objective.²⁷

Zuboff reiterates this in her book when she says “Surveillance capitalism is a rogue force driven by novel economic imperatives that disregards social norms and nullifies the elemental rights associated with individual autonomy that are essential to the very possibility of a democratic society.”²⁸

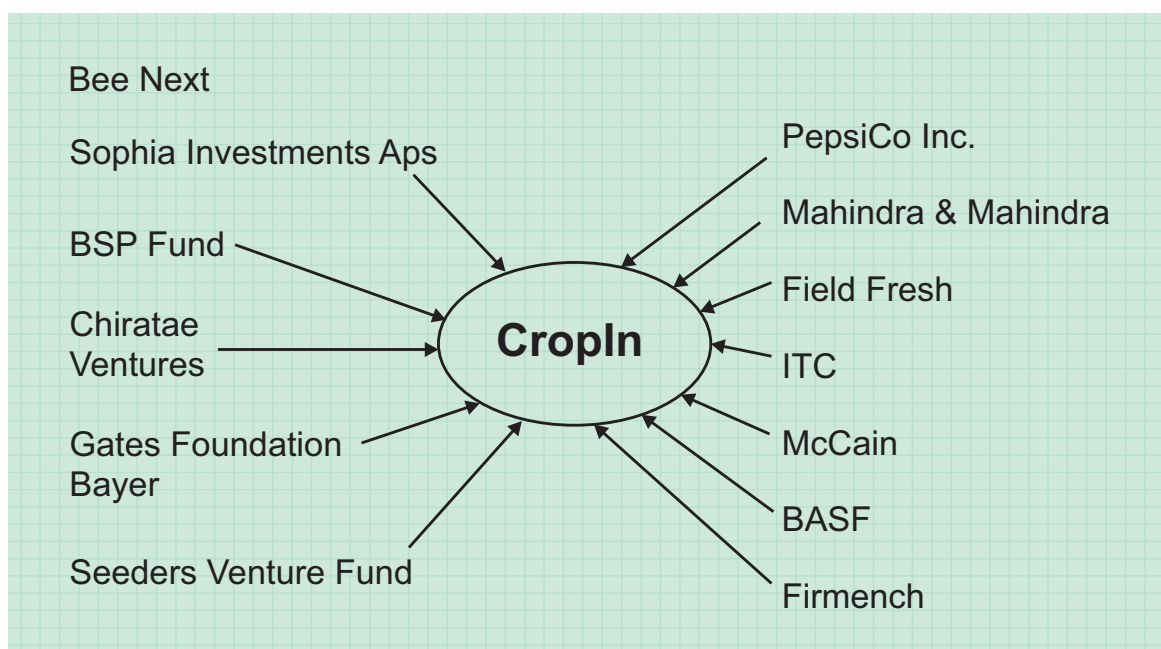
The propaganda for surveillance capitalism is exactly the same that was used in the failed Green Revolution: “To feed the 9.7 billion people in the world in 2050, agriculture efficiency must increase by 35% - 70% and technology is the key. India’s rich mix of farming practices and small landholdings provide a massive data set to inform our models.”²⁹ Smallholders and their farming practices have been reduced to a “data set” for surveillance capitalism that will “provide valuable insights for the agri industry, financial institutions, growers and policy makers.”³⁰

The plan is designed by the Poison Cartel, the billionaires and the “start-ups” they fund. The invasion of surveillance is on a worldwide scale. However, partnerships with states make the surveillance capitalists and Poison Cartel invisible.

Seeds of Surveillance: Surveillance Capitalism Enters Indian Agriculture

CropIn Technology Pvt. Ltd. a Bengaluru-based company has raised \$12 million in funding. It is funded by the Poison Cartel, Venture Capital Firms and Agtech companies like Chiratae Ventures, Bill and Gates Foundation, Strategic Investment Fund, Seeders Ventures Fund, Syngenta, Bayer and BASF. Its clientele includes PepsiCo, Mahindra & Mahindra, ITC, Field Fresh and McCain.

Bayer/Monsanto/Gates and Seeds of Surveillance



²⁷ Ibid.

²⁸ Zuboff, S. (2019). The age of surveillance capitalism: The fight for a human future at the new frontier of power. Profile Books. Pg. 11.

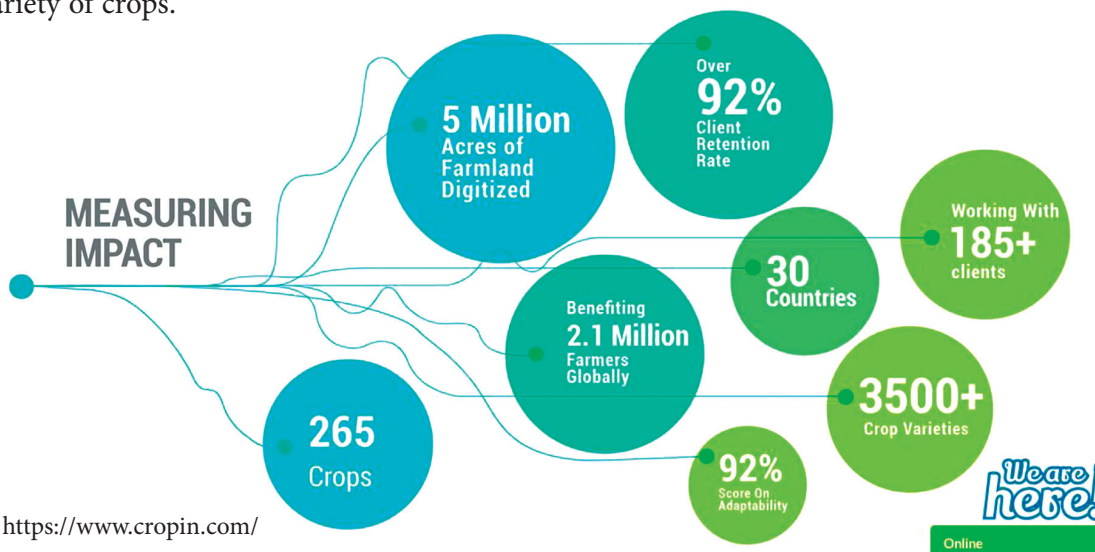
²⁹ Ahuja, A. 2018. CropIn Technology raises \$8 million from Chiratae Ventures, Gates Foundation. Livemint. Available at: <https://www.livemint.com/Companies/X5TRE10YbgUlqgvhN2IDBL/CropIn-Technology-raises-8-million-from-Chiratae-Ventures.html>. Accessed on 20 August 2019.

³⁰ Economic Times. 2019. SaaS-based agri-tech company CropIn registers 300% growth. Available at: <https://economictimes.indiatimes.com/small-biz/startups/newsbuzz/saas-based-agri-tech-company-cropin-registers-300-growth/articleshow/68147881.cms?from=mdr>. Accessed on 23 August, 2019.

The company claims that it would utilise the funding to use its technology and machine-learning platform to control over 10 million acres of land and invade the lives of seven million farmers in India and globally.³¹

It is claimed that CropIn has been founded by Krishna Kumar, Kunal Prasad and Chittaranjan Jena. But it is the money of the Poison Cartel and billionaires that actually founded it. The technologies being promoted are those of the Poison Cartel. The “founder” of CropIn talking about its ‘SmartRiskTM’ solution says: “SmartRiskTM leverages Artificial Intelligence, Machine Learning and Big Data Analytics.”³²

CropIn claims to use Big Data analytics, artificial intelligence and remote sensing to “analyze data” for 265 crops for agriculture processors, distributors, inputs providers, lenders and insurers. The start-up claims to be building an “agri-information dataset” to detect patterns and “predict the future” of a variety of crops.



Source: <https://www.cropin.com/>

A nine year old start up, setup in 2010 cannot possibly cover 30 countries in Asia, Europe, Africa, and the Americas and invade the lives of over 2.1 million farmers by digitizing over 5 million acres of farmlands.

In India, CropIn has announced its presence in 70% of the states.

CropIn has a tie-up with the Department of Agriculture (DOA), Government of Karnataka, to “help” farmers create “more value” for their crops. The project aims to “assist” 4.15 lakh farmers across 30 districts of Karnataka in digitising 3.4 lakh acres of farmlands.

In 2017, CropIn started a project in collaboration with the Department of Horticulture (DOH), Andhra Pradesh, to digitize farms under two FPO in the districts of Chittoor and Krishna. It also works with the Bihar State Government and is part of the Jeevika project that uses “smart technologies” for climate resilient agriculture.³³

Additionally, the World Bank has chosen CropIn as the technology partner in the public-private partnership project of the Government of India and World Bank.

The Poison Cartel and Ag-tech in India are turning our seeds of freedom into seeds of surveillance. CropIn technology solutions is partnering with the department of agriculture and welfare, Government of Punjab to plan the certification and traceability of seed potato. Punjab Agri Export Corporation

³¹ Ahuja, A .2018. CropIn Technology raises \$8 million from Chiratae Ventures, Gates Foundation. Livemint. Available at: <https://www.livemint.com/Companies/X5TRE10YbgUlgvN2IDBL/CropIn-Technology-raises-8-million-from-Chiratae-Ventures.html>. Accessed on 19th August 2019.

³² Economic Times. 2019. SaaS-based agri-tech company CropIn registers 300% growth. Available at: <https://economictimes.indiatimes.com/small-biz/startups/newsbuzz/saas-based-agri-tech-company-cropin-registers-300-growth/articleshow/68147881.cms?from=mdr>. Accessed on 23 August, 2019.

³³ How CropIn is helping the farmer ecosystem. 2018. Available at: <http://smartceo.co/cropin-helping-farmer-ecosystem/>. Accessed on 28th August 2019.

(PAGREXCO) has been reported to deploy blockchain technology with the help of barcode, QR code and geo-tagging to undertake certification and traceability of seed potato right from nucleus to seed level (harvest).

This is surveillance.

This leads to dispossession.

Furthermore, it has been reported that India's agriculture ministry is working with National Informatics Centre on a 5 crore rupee project which involves rolling out a software which will barcode all seeds. This has been justified on the grounds of making everything "more transparent" and "more traceable" and to "weed out poor quality seeds". The seeds will be "tracked" throughout the supply chain. It has also been reported that there are discussions with the state governments to adopt the same software. What is even more troubling is that 5,000 private seed companies have already come on board with this. The goal of this initiative, within two years, is to know how much of which seed is sold in which area. Farmers' community seed exchange of farmers' varieties has total reliability and transparency and does not need surveillance technologies.

Imposing failed GMO technologies through a compulsory seed certification law is seed slavery

We are facing a new attempt by the corporates to attack our sovereignty through a seed law which would replace the Seeds Act, 1966 and will be introduced in the parliament in this year's winter session (2019).³⁴

This proposed law is a threat to the sovereignty of our farmers and our anna datas because:

It requires mandatory uniform certification of all seeds in our country. The 1966 Act states: "An Act to provide for regulating the quality of certain seeds for sale..." The new Bill is said to remove the word "certain". And replace this with "all" seeds. All seeds would include farmers' seeds. Seed Sovereignty requires farmers' varieties be excluded from this.

The justification of needing this law has been: "Technology has changed, farmers' expectations have changed, even the very definition of what is a seed has changed." Every part of this justification is false.

- "Technology has changed"

Technology is just a tool which we adapt to human needs and human freedom. When humans are coercively adapted to a corporate tool designed to control nature and society it becomes a tool of slavery. Since technologies are tools, they are chosen.

The Failure of the Green Revolution seeds and the GMO Bt cotton seeds is a failure of the Corporate driven technologies for making superprofits through selling poisons and non renewable seeds, and the technological approach of control and ownership .

With the ecological emergency, climate emergency and the food emergency, the technologies that are needed are participatory and evolutionary, breeding for climate resilience, for increasing nutrition, and making agriculture poison free.

Desi, indigenous seeds are the seeds of the future. And farmers' seed sovereignty to evolve, breed and distribute their seeds is at the heart of ecological security and food security.

Corporate technology of producing GMOs through genetic engineering and gene editing has failed. The failure of genetic engineering has been proven again and again through the Bt failure which has led to thousands of farmer suicides. Gene editing has also been proven to be a failure because of how inexact and unpredictable it is. It was found that CRISPR introduced more than 1,500 single-nucleotide unintended mutations more than 100 larger deletions and insertions into the genome of mice.³⁵

³⁴Jebaraj, P. 2019. Certification of seeds to be made mandatory to step up farm output. The Hindu. Available at: <https://www.thehindu.com/business/agri-business/certification-of-seeds-to-be-made-mandatory-to-step-up-farm-output/article28979417.ece>. accessed on 25th august 2019.

³⁵Shiva, V and Shiva, K. 2018. The Future of our daily bread: Regeneration or Collapse. Navdanya International / Research foundation for science, technology and ecology.

- “farmers’ expectations have changed”

The second justification is that farmers’ expectations change. Farmers’ expectations change only when one assumes that farmers can be manipulated to be subjugated for the new seed slavery. But farmers have experienced failures of genetic engineering and failure of GMO Bt cotton. More and more farmers are becoming conscious of the qualities and the value that their desi seeds hold for diversity, nutrition and climate resilience. Desi seeds are spreading because they conserve water, are more resilient and have more nutrition and taste.

- “the very definition of what is a seed has changed”

The definition of seed cannot change.

Seed is living. Seed is the source of life. Seed is self organising complexity, constantly adapting to the rapidly changing climate.

For corporations, seed is merely an “intellectual property” and “plant propagating matter”. For them, the seed is not renewable and it doesn’t multiply. It has lost its freedom. It is the anti-seed.

Compulsory certification creates one uniform standard for the quality of seeds. And this “standard” is created in favour of the corporate made seeds. It furthers the destruction of diversity which our farmers have cultivated. By destroying the renewability and diversity of seed, it makes ‘Anti seed’ which is anti life. The proposal for the compulsory certification is a proposal for an anti seed and anti life law.

This idea of forcing GMOs and seed surveillance through a compulsory seed certification law serves entities like the Gates Foundation.

It was recently reported that the 18,000-crore seed industry has called for the introduction of a National Agricultural Policy and expedition of the Seed Bill and Biotech Regulatory Authority of India (BRAI) Bill to “ensure policy direction and predictability”.³⁶

Farmers have knowledge of their seeds. Farmers’ seeds are in the commons where the community has the knowledge of the quality, reliability, and the traits of their seeds.

Barcodes, QR codes, geotagging and blockchain technology imposed by these corporations are the tools of corporate slavery.

The paradigm of seeds of surveillance is one of the combination of digital agriculture, data science and genetic engineering creating higher level of integration of abstractions and instrument for control. This is also why we see today that not only is the old toxic cartel recombining as a new one through mergers, it is going beyond the convergence of seeds, pesticides and fertilisers to farm equipment, information technology, climate data, soil data and insurance.³⁷

Farmers need Freedom not Slavery

Farmers have knowledge. This is the knowledge being harvested through digitalisation.

But data is not knowledge. It is just another commodity to make the farmer more dependent. The farmer is being told he or she must outsource his or her mind to Monsanto. This is the next step in a dead-end future that ignores the intelligence of seeds, plants, soil organism, our gut bacteria, our farmers, our grandmothers.³⁸

Seeds of Surveillance transform the knowledge and knowing from a participatory process of co creation with the earth, her biodiversity, her soils to take better care of the soil and the seed, based on

³⁶ Kurmanath, KV. (2019). Seed lobby wants govt to do away with MSP, price-control regime. Business Line. Available at: <https://www.thehindubusinessline.com/economy/agri-business/seed-lobby-wants-govt-to-do-away-with-msp-price-control-regime/article29189517.ece>. Accessed on 23 august 2019.

³⁷ Shiva, K and Shiva, V. (2018). Oneness vs 1%: shattering illusions, seeding freedom. Pg.62.

³⁸ Shiva, K and Shiva, V. 2018. Oneness vs 1%: shattering illusions, seeding freedom.

³⁹ Shiva, V and Shiva, K. 2018. The Future of our daily bread: Regeneration or Collapse. Navdanya International / Research foundation for science, technology and ecology.

seed and knowledge sovereignty into “data” for increased control over farming by the Poison Cartel, a continuation of the industrial food system, and the basis of an attempt at epistemic imperialism.³⁹

We need to resist these seeds of surveillance.

We need to defend the seeds of freedom.

The future is based on biodiversity, seed sovereignty and agroecology, not on the illusions sold by the Poison Cartel: the future is Agroecology, not “Ag tech”

There is an illusion that running faster on the chemical and Poison Cartel treadmill, now equipped with Artificial Intelligence and Robots will be more effective in producing more food and feeding the hungry. On the contrary, the tools and technologies of the Poison Cartel have brought the planet and the lives of farmers to the brink with climate havoc, species extinction, water crisis, farmer incomes collapsing to zero and food related diseases killing larger numbers of people.

The tools of the Poison Cartel have repeatedly failed in agriculture which is about life and its renewal.

Pesticides have failed to control pests.

Bt crops have failed to control pests.

New pesticides deployed faster through the Poison Cartel now using partnerships with “Artificial” Intelligence for algorithms for guessing which molecules can be used for new pesticides will also fail as a pest control technology. It already is failing.

We need to rise up and look past the corporate narrative and the lies being sold to us:

First Green Revolution	“Chemicals will feed us”
Second Green Revolution	“GMOs will feed us”
Third Green Revolution	“Surveillance and big data will feed us”

We are clearly not being fed by these tools.

We have neither bread nor freedom in the Poison Cartel paradigm.

There is another paradigm that sustains life on earth and feeds people: the paradigm of Agroecology. Agroecology and biodiversity based agriculture produces more food while regenerating the earth and reversing the decline in farmers’ incomes.⁴⁰

Which is why we need to reclaim our freedom and sovereignty and return to our roots of farming with nature. The future has to be based on diverse agroecological systems in India and across the world, not the continuation of the rule of the Poison Cartel which will accelerate the current emergency, with more farmers committing suicide, more children dying of hunger and malnutrition, more climate catastrophes, more forest fires and more species extinction.

Our future and our freedoms are based on working with the earth through Agroecology, not engaging in a war with the earth through Ag Tech.

Our sovereignties and the sovereignties of the earth are one. We will defend our future by defending our:

Seed sovereignty (Bija Swaraj).

Food sovereignty (Anna Swaraj).

Land sovereignty (Bhu Swaraj).

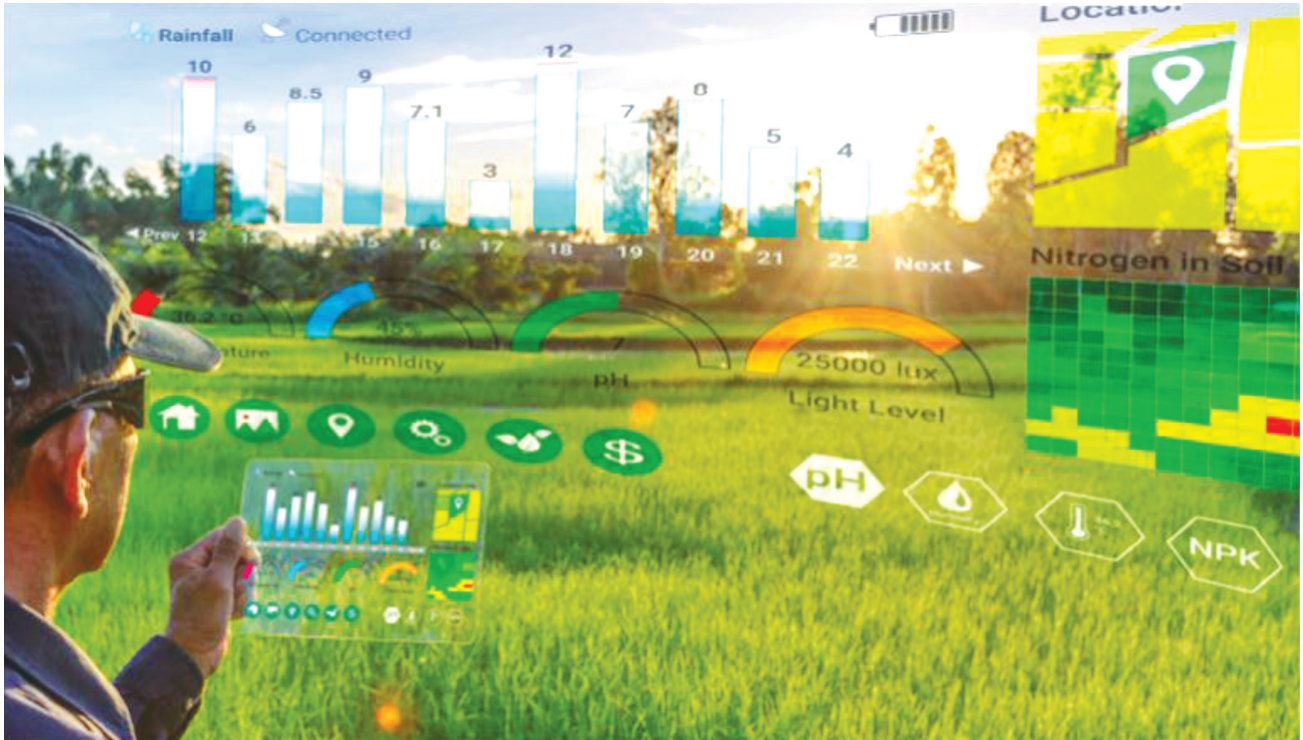
Knowledge sovereignty (Gyan Swaraj).

⁴⁰ Shiva, V., & Singh, V. (2011). Health Per Acre: Organic Solutions to Hunger & Malnutrition. Navdanya/Research Foundation for Science, Technology & Ecology; Shiva, V., & Singh, V. (2014). Wealth Per Acre: The transition to ecological farming that rejuvenates nature’s economy and people’s economy seems not only logical but also inevitable. Navdanya/Research Foundation for Science, Technology & Ecology.

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Appendix



AI, Precision Farming, Geotagging Source: <https://www.cropin.com/>



Robotics , Drones , Remote Sensing & Precision Agriculture, Source: <https://www.cropin.com/>



Challenge

This case is about one of the world's largest producers of potato specialties company based in India. The company leases plots for farming and has 2500+ plots spread across an area of 5200+ acres. Earlier, they used to record farm data manually, thus creating multiple inconsistent entries. A check on practices such as dehauling & rouging, adoption of right package of practices & the right inputs and visibility of field activities were serious challenges faced by the company. The company was on the lookout for a **complete farm management solution to resolve its various issues.**



Solution

- 2500+ Plots audited and geo tagged to find the actual plot area
- Remote Sensing and Weather Advisory helped in detection of dew point, rainfall, frost, blight and other challenges related to dehauling
- Gathering Complete information from farmer registration till harvest end
- Scheduling and monitoring farm activities for complete traceability
- Educating farmers on adoption of right package of practices and inputs
- Monitoring Crop health and harvest estimation

CropIn-McCain Source: <https://www.cropin.com/>



Climate Smart Agriculture Source: <https://www.cropin.com/>

