

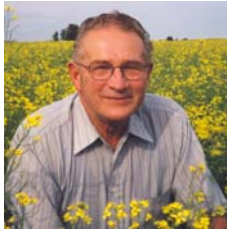
PLANT BIOTECH LIVING LEGENDS

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Content

Percy Schmeiser: Canola crook or corporate martyr?	2
Gottfried Glöckner: 70 dead cows and Bt corn	3
Prof. Arpad Pusztai: Rats, the “snowdrop lectin” and “killer” potatoes	4
Vandana Shiva: Buddha, Ghandi or ...?!	5
José Bové: GMO and „malbouffe”	7
Irina Ermakova: Soy and rat posterity	8
Monarch Butterfly: Bt maize and „non target insects”	9

Percy Schmeiser: Canola crook or corporate martyr?



The legend (very popular globally)

Schmeiser is a Canola farmer from Saskatchewan (Canada). He is being celebrated as being a „small organic farmer“. For 55 years, he used his own Canola seed. Then on his field was found Monsanto's patented GM „Roundup Ready“ (RR) canola. Schmeiser said, it must have blown over from neighbor fields or fallen from passing trucks. Monsanto sued Schmeiser for allegedly growing RR without paying for the seed and the „technology license“, harassed and „spied“ on him. Schmeiser contested the case up to the Canadian Supreme Court, whose ruling supported Monsanto in its claim to own the trait. Thus the Schmeisers lost their breeding research, which they had built up for decades, and the varieties that they had painstakingly adapted to their local environment for years through conventional breeding because they now contained the Monsanto-“owned“ gene. In a following legal case, the Schmeisers tried to turn the notion of benefit to farmers from Monsanto genes around, claiming that Monsanto-“owned“ genes are to be regarded as contamination. In March 2008 he agreed to settle this „Small Claims“ court case. Schmeiser has his own website and travels the world (in January 2008 in Germany and Austria supported by a radical anti-GMO-network), speaking about his victimization by the biotech industry. In 2007, he and his wife Louise received the Right Livelihood Award (Alternative Nobel Prize) „for their courage in defending biodiversity and farmers' rights, and challenging the environmental and moral perversity of current interpretations of patent laws“.

→ **more legend:** <http://www.percyschmeiser.com/>; <http://www.percy-schmeiser-on-tour.org/>

Behind the legend

In court Schmeiser claimed that, when spraying Roundup along the edge of a field to control weeds, he had unintentionally discovered Roundup resistant canola plants in one of his 1997 fields. To examine this further, he sprayed Roundup on a large portion of the same field and noted that many of the canola plants at the edge of the field survived. Schmeiser saved the seeds from the plants that survived Roundup treatment and used them to plant his entire 400 hectares (1000 acres) the next year (1998). Tests on various samples including court-ordered samples taken from all of his 1998 fields revealed that 95 to 98% of Schmeiser's 1998 crop was genetically engineered! In March 2001 a Saskatchewan federal judge found Schmeiser guilty of patent infringement, ruling that he „... planted his crop for 1998 with seed that he knew or ought to have known was Roundup tolerant.“ Schmeiser appealed the ruling to the Canadian Federal Court of Appeal and lost again in September 2002. His legal battle ended in May 2004, when the Canadian Supreme Court agreed with lower court rulings and sided with Monsanto: „The appellants [Schmeiser et al] actively cultivated Roundup Ready Canola as part of their business operations.“ The Supreme Court did set aside part of the earlier financial penalty - the requirement to pay Monsanto the profits from his 1998 crop. It ruled that Schmeiser did not earn any additional profit due to the use of Monsanto's variety.

Despite repeated defeats in court, and the strong evidence (including his own admission) that he knowingly and deliberately planted Roundup Ready canola in his 1998 fields, Schmeiser is being celebrated now as a hero among the anti-biotech crowd across the globe and received the Alternative Nobel Prize in 2007. His „Small Claims“ court case against Monsanto which Schmeiser agreed to settle in March 2008 was more likely a part of his lobby campaign.

→ **more of what's behind:** <http://www.geo-pie.cornell.edu/issues/schmeiser.html>; <http://www.spiked-online.com/Printable/0000006DAA7.htm>; German: <http://www.novo-magazin.de/58/novo5826.htm>; <http://www.gruene-biotechnologie.de/inhalte/deichmongericht.html>

Arguments against the legend

- Schmeiser is convicted by the Canadian Supreme Court. He knowingly planted genetically modified canola (verdict: <http://decisions.fct-cf.gc.ca/en/2001/2001fct256/2001fct256.html>)
- Schmeiser knowingly grew Monsanto technology on 95-98% of his field. He benefited from the technology without paying for it.

Gottfried Glöckner: 70 dead cows and Bt corn



The legend (low awareness)

Between 1997 and February 2002, farmer Gottfried Glöckner of Wölfersheim in Hessen fed his dairy cows with increasing amounts of genetically modified Bt corn which was being tested on his farm as part of authorized field trials. In 2001, five dairy cows died and by October the following year, seven more had died. Glöckner suspected that the Bt corn might be the cause of their death, particularly the Bt toxin, an active substance produced by the corn as a defense against the European corn borer (Maiszünsler, *Ostrinia nubilalis*). A Report-Mainz TV program (content: investigative journalism) broadcasted by ARD in December 2003 also suggested serious safety lapses and criticized the authorities for their inaction. Three months after the last of the five cows died, Glöckner informed the Robert Koch Institute (RKI) in Berlin, the body involved in authorizing EU-wide use of Bt176 corn developed by the agro-biotech company Syngenta. Despite its findings (see below), Glöckner filed a lawsuit against Syngenta, claiming that Bt corn was the cause for 70 dead cows altogether, and that industry and scientific institutions had intentionally ignored his case. He lost the claim for damages against Syngenta (Landgericht Gießen, Az.: 3 O 564/05) as the court ruled there was no proof that the company had made a mistake in seed development; an attempt at settling the case failed in November 2007 due to Syngenta's claim that the payment of 100.000 Euros which the court proposed was equal to an admission of guilt.

→ more legend: http://www.nbks.ch/abstim/gentechmais_rindersterben.html

Behind the legend

The RKI started an investigation and interviewed experts in state-run and private research institutes. Samples of Bt corn silage and Bt corn kernels from 2000 and 2001 were examined on the farm, and also other feeds such as grass silage. Analysis of the findings did not provide any evidence that Bt corn was the cause of death. Rather in their report, the experts criticized inadequacies in the quality of the feed and deficiencies in the composition of their feed rations, which they considered might lead to substantial health problems in dairy cows. Botulism pathogens were found in the gut of one of the dead cows; there was evidence of a botulinum infection in a second one, likewise in three of the five cows surviving at that time.

Bt corn is grown annually on almost ten million hectares of land and livestock is safely fed Bt corn worldwide. In Spain, Bt176 corn has been harvested since 1998 for use as animal feed on at least 22,000 hectares. The Spanish environment ministry confirmed that there have been no noticeable illnesses or deaths in animals fed on Bt corn. Long-term feeding studies carried out in 1999 at the Federal Agricultural Research Centre (FAL) likewise produced no evidence of damage to health. Beef cattle fed on Bt corn showed no noticeable problems compared with conventionally-fed animals, even after 246 days. During feeding experiments on small mammals carried out as part of the authorisation procedure for Bt corn, not a single case was found of negative effects on the animals. [Animals fed on Bt corn also ingest the Bt toxin. Although it is quickly broken down in the body by saliva and digestive enzymes, there is evidence of the protein throughout the entire digestive process. A precondition for the authorisation of genetically modified Bt plants is evidence that the Bt toxin is harmless to animal health – and in the case of food, also harmless to human health.]

Glöckner has since been in jail for violent behavior towards his wife, nanny and children, upon which NGOs stopped using Glöckner as negative examples against biotech crops. But we should stay away from commenting on anything but his arguments against GMO's.

→ more of what's behind: <http://www.gmo-safety.eu/en/archive/2003/248.docu.html>

Arguments against the legend

- The result of the RKI inquiry cleared Bt corn and pointed to the likely reasons for the dead cows: mycotoxins in the feed due to the low hygiene standard at the farm.

Prof. Arpad Pusztai: Rats, the “snowdrop lectin” and “killer” potatoes



The legend (popular globally)

In April 1998, Arpad Pusztai, a researcher at the Rowett Research Institute in Aberdeen, UK, announced on British television – before informing his colleagues or cooperation partners – his findings that an unmarketed variety of GM potatoes modified for improved insect resistance caused intestinal inflammation in rats. He used the opportunity to decry the hazards of GM foods, exclaiming that it was „very, very unfair to use our fellow citizens as guinea pigs.” Pusztai failed at first to produce data to back his claim, and was summarily fired by Rowett. He claimed that the toxic effect of the GM potato he tested might not be due entirely to the protein engineered into the potato (lectin from the snowdrop plant, Schneeglöckchen), but additionally to the process of genetic engineering itself. Further, Pusztai announced to the media that GM foods were widely „consumed untested“. The announcement launched a firestorm of controversy, followed by a series of increasingly heated editorials in the prestigious British medical journal, *The Lancet*, and ultimately calls by the British Medical Association to ban all GM foods until „proven safe.“

→ more legend: <http://www.energygrid.com/ecology/2002/10ap-pusztai.html>

Behind the legend

The Royal Society (the premier British scientific academy) conducted a closed-door evaluation of Pusztai's unreleased data and concluded that his study was „flawed in many aspects of design, execution, and analysis and that no conclusions should be drawn from it“. Eventually Pusztai produced his data for peer review and *The Lancet* (see above) begrudgingly published it, explicitly to avoid accusations of censorship. Pusztai's conclusions baffled many scientists trying to interpret his results. The experts who were closest to the research found his findings questionable, confusing, and arbitrary – among them Pusztai's two outside collaborators at the Scottish Crop Research Institute and the University of Durham, and e.g. Tom Sanders, professor of nutrition at King's College London, one of the most distinguished food toxicologists in Britain and an expert reviewer for some of the leading scientific journals in the field. On the other hand, it is not surprising that the particular GM potatoes Pusztai tested might be toxic. They had been engineered to produce a new lectin – a kind of protein important in many plants' natural defenses – in order to improve their resistance to insects. Although lectins are very common in plants (including potatoes), researchers have long known that many lectins are especially toxic, antinutritive, and even allergenic (in wheat and peanuts, for example). Additionally, lectins are known to cause the kind of intestinal damage Pusztai later observed in his rats. With this potential in mind, the specific lectin (from the snowdrop plant) genetically-engineered into potatoes was selected because preliminary tests – tests conducted by Pusztai himself in earlier research – showed that its impact on rat health would be minimal. Pusztai's feeding study with the GM potatoes was the natural next step in assessing their safety.

Since then Pusztai has been repeatedly asked by the European anti-GMO-network and political institutions (i.e. Bundesamt für Naturschutz) to produce further „studies“ to put up barriers for the legalization of GMO in Europe.

→ more of what's behind: <http://news.bbc.co.uk/2/hi/science/nature/474978.stm>; German: <http://www.novo-magazin.de/89/novo8938.htm>

Arguments against the legend

- Pusztai failed to adhere to basic rules in science. His study was flawed in many aspects of design, execution and analysis. Pusztai's arguments never got support from notable scientists.

Vandana Shiva: Buddha, Ghandi or ...?!



The legend (very popular globally)

Vandana Shiva is a physicist (Ph.D. in Quantum Theory Physics in Canada), feminist, environmental activist and author (*Stolen Harvest: The Hijacking of the Global Food Supply*). In India she established *Navdanya*, a movement for „bio-diversity conservation and farmers' rights" and the *Research Foundation for Science Technology and Ecology*. In 1993, Shiva received the Right Livelihood Award (Alternative Nobel Prize). Shiva's criticism of plant biotech – which she sees, for example, as one of the main reasons for the frequent suicides of indebted Indian cotton farmers – is embedded in her general ideology. She blames the forces of globalization for most of the ills of Indian society and advocates import barriers to protect Indian agriculture in terms of its monetary and spiritual value. Shiva's Indian agriculture is one of a healthy, self-sufficient food supply produced in an ecologically sustainable manner. She refers to global seed and plant protection producers and bio-patents as „bio-colonialism" and „biopiracy".

→ more legend: <http://www.navdanya.org/>

Behind the legend

Vandana Shiva is celebrated as a holistic eco-feminist, anti-globalizer and spokesperson for those are „without a voice". She fails to explain the famines that took place before globalization, and how to deal with the population growth that – of itself – has necessitated a move away from traditional agriculture. Why hundreds of millions of peasant agriculturalists in India and around the world have adopted modern agricultural technologies – and thus forsaken the utopian existence she advocates – is also never explained. If, as Shiva argues, modern technology is pauperizing populations and driving people to suicide – why have life expectancies risen dramatically throughout Asia for both rural and urban populations? When Shiva argues that modern technologies have failed, she has the food prices in India doubling so that consumers can no longer afford it. But when she wishes to criticize the U.S.A. for „dumping" food on the Indian market, pushing Indian farmers to commit suicide, she claims that subsidized foreign food is „driving down prices". In India, following a „super-cyclone" a team from Shiva's „research foundation" demanded that the Indian government withdraw donated grain, claiming it was GM – seemingly preferring starvation for the cyclone victims to a presumed but unproven contamination from GM food. As a Western-educated jet-setter, Vandana Shiva projects the life style of the poor as being morally superior and socially richer than that of the Western „oppressors". Academics (also in India) criticized her as a „populist intellectual" and hypocrite, failing to offer a progressive and feasible program for change. Shiva and her cohorts may feel „victimized" by „alien" ideas, but it is doubtful that this is the case for many throughout the world who have benefited from it, whether by a larger crop or lives saved by immunization or antibiotics.

→ more of what's behind: <http://www.butterfliesandwheels.com/articleprint.php?num=17>

Arguments against the legend

- For a long time, Indian cotton production was one of the most important in terms of quantity worldwide, although productivity was substantially low. Whereas India's cotton area represents 25% of the global area of cotton, in the past it produced only 12%. The major reason for this low productivity was inefficient agricultural methods and damages caused by pests – mainly caused by American bollworm (Baumwollkapselwurm, *Helicoverpa zea*). This is why the commercial cultivation of *Bt* cotton was introduced in India in March 2002.
- Biotech crops have delivered substantial economic and environmental benefits to farmers in countries such as India, where 3.8 million resource-poor farmers grew biotech crops in 2007. Biotech has helped turn India from a country with one of the lowest cotton yield in the world to being a net cotton exporter. (*Bt* cotton has increased yield by up to 50% in India and reduced insecticide use up to 50% or more – see ISAAA at www.isaaa.org).
- The choice of seeds is completely free for farmers to decide upon. When millions of Indian farmers use biotech seeds, it is because they realize the extra gains to be made with an extra up-front investment.

Background about Indian farmer's suicides

- Farmer suicide is a persistent issue in some parts of India since long before 2002 when biotechnology was introduced. Farmers' suicides are recognized to be related to deep-rooted socio-economic problems. Comprehensive socio-economic investigations conducted by many institutes mention indebtedness as the primary cause of farmers' suicide.
- Other causes like repeated crop failures due to climatic conditions such as floods or drought play a role in the lack of income, farm failures and indebtedness of farmers.
- Other limiting factors including breakdown of formal credit structures, lack of irrigation, unfavorable cost-benefit ratio of the crop, are also contributing factors to farm failures, which sometimes tragically result in farmer suicides in certain states.
- The biotech industry tries to work closely with farmers, to help them to improve their lives and livelihoods by offering high quality products, and constant innovation to secure yields and productivity despite the above-mentioned limiting factors.
- Several studies show the benefits of biotechnology to Indian farmers and illustrate that farmers who chose to cultivate biotech crops have experienced socio-economic benefits such as increased yields and profits, reduced costs, reduced pest incidence and improvement of life style. Furthermore the studies show that the increase in income due to the introduction of biotech crops has allowed farmers to fulfill their financial obligations and to extend their farms thereby increasing income further.
- Because of its benefits to society the Indian state itself is intensively supporting research to develop new GM crops.

Background about child labor in India

- Child labor is a complex social problem of Indian society which is mainly due to poverty. Poor parents can not afford to send their children to school either because the scholarship fees are too high or schools are insufficient; this often results in child labor.
- Other causes like schools insufficiency, marginalization, migration, gender, caste system, ethnicity and religion also need to be addressed to eradicate child labor in India.
- Several studies show that the adoption of new technology by farmers has impacted positively on their household income and that of their community. They could experience enough income increase to allow them to send their children to school and have a better lifestyle. Figures have clearly shown higher enrollment to school for children belonging to biotech farming households.
- Transfers of new technology from the developed countries to the developing nations may improve the standard of living, increase efficiency in production and become a base for economic growth.

José Bové: GMO and „malbouffe“



The legend (popular globally)

Joseph (José) Bové is a French farmer and anti globalization activist. He was one of the official candidates in the 2007 French presidential election [3951 votes (1,20%) first round]. In the 80s Bové co-founded the Confédération Paysanne, a leftist agricultural union that promotes organic farming. He opposes „global imperialism“, „mass-market uniformity“ and genetic engineering. The event which initially brought Bové into the foreground was the dismantling of a McDonald's franchise in Millau (Aveyron) in 1999. To

Bové, the golden arches represent the industrialization of all food production, the worst of „malbouffe - bad food“. He was sentenced to three months imprisonment for his role in the incident and imprisoned for 44 days (2002). The McDonald's attack contributed considerably to making him a star of the anti-globalization scene. Bové has turned to GM foods and called for the creation of an independent world court to protect conventional agriculture. He spent several months in prison more than once in the past years for destroying genetically modified crops. In January 2008, Bové went on a hunger strike to try and get the French government to do more to ban genetically modified crops. He ended his strike after two weeks when the government declared it would „ban“ the commercial use of MON 810.

→ **more legend:** <http://www.confederationpaysanne.fr/>;
<http://www.greenpeace.org/international/press/releases/greenpeace-jose-bove-protest>

Behind the legend

Bové's critics describe him as an opportunist, a veteran activist with no real farming roots, who has „not seen his sheep for a month“. They cite his Californian upbringing, and France's *Elle* Magazine once called Bové „the man who fooled us most, who perpetuated fraud“. And before he founded the Confederation Paysanne, they ask why an authentic French farmer would really need to spend time at a Quadafi-sponsored „direct action“ training camp in Libya. Despite Bové's tempting list of controversies and criminal convictions, however (including his 2004 announcement that he would join the People's Congress of Kurdistan [Kongra-Gel], a group which is on the European Union's and United States State Department's lists of terrorist groups), we should resist and stay away from commenting on anything but his arguments against GMO's.

→ **more of what's behind:** <http://www.geo-pie.cornell.edu/>; <http://www.gmo-compass.org/eng/home/>

Arguments against the legend

- Bové is promoting his „life style“, no scientific arguments. That's why he is not been taken serious by experts. He is a professional activist embracing any topic that can be fought for to get attention in media.
- Bové is not interested in discussion and clarification of the topic. He has a tempting list of criminal convictions including many field destructions of GM field.

Irina Ermakova: Soy and rat posterity



The legend (popular globally)

An unprecedented study claiming that transgenic soybeans compromise the fertility of rats and the survival and growth of their offspring has garnered widespread media and political attention: Neuroscientist Irina Ermakova of the Institute of Higher Nervous Activity and Neurophysiology of the Russian Academy of Sciences (RAS) in Moscow made headlines in 2005 when she reported that offspring from rats fed diets containing glyphosate-tolerant GM soybeans (Monsanto's „Roundup Ready” line 40.3.2) had low survival rates or stunted growth. These findings have been widely disseminated and discussed in the media and internet and cited by hundreds of organizations as evidence

of the potential toxicity of GM products. They've also prompted the American Academy of Environmental Medicine (Wichita, KS, USA) to call for additional independent studies of food safety for GM crops, been referred to in a state Australian parliamentary debate as a reason to ban GM crop cultivation and motivated regulatory agencies in several countries to review their approvals of GM organisms or to comment on the work.

→ more of the legend: <http://irina-ermakova.by.ru/eng/>;
<http://www.saynotogmos.org/ud2007/unov07a.php>

Behind the legend

The scientific journal *Nature Biotechnology* approached Ermakova to ask for a detailed account of her work in her own words, which were published in September 2007 together with detailed comments solicited from a group of researchers working in the field (Bruce Chassy, University of Illinois at Urbana-Champaign, former Biotechnology Industry Organization BIO, Washington, DC, USA; L. Val Giddings, staffer and industry consultant; Alan McHughen, University of California's; Vivian Moses, University of London). They drew the conclusion that no meaningful inferences can be drawn from Ermakova's results because (e.g.):

- The experimental design does not follow internationally recognized protocols: the nature of the source material, the consumption by each animal and the composition of the diet is unknown. Too few animals were studied and gender differences were not recorded. The abnormally mortality and low growth rates of the control groups point to poor animal stewardship.
- The adverse effects on reproduction, survival and growth rate observed by Ermakova when RR soybeans are combined in animal diets contrast sharply with the results of all previous studies (e.g.: Brake, D.G. & Evenson D.P. A, 2004). None of these studies reported unusual mortality or changes in growth rates in the presence of RR soybeans.
- According to the experts, Ermakova's results depart so dramatically from previously reported findings as to be remarkable, and remarkable results, they conclude, demand remarkable support that Ermakova fails to provide. They criticize her for ignoring the standard scientific practice of submitting research for peer review before publicizing her results.

→ more of what's behind: <http://www.nature.com/nbt/journal/v25/n9/full/nbt0907-981.html>;
http://www.gmo-compass.org/eng/news/stories/195.study_gm_soy_dangerous_newborns.html

Arguments against the legend

- Ms. Ermakova studies are not peer reviewed. On the contrary, leading scientists in this field criticize her study and say she did not follow internationally recognized protocols. Various similar studies come to the opposite agreement: RR soybeans are safe for humans and animals.

Monarch Butterfly: Bt maize and „non target insects“



The legend (very popular globally)

The pest targeted by transgenic maize producing Bt-toxin is primarily the European corn borer (*Maiszünsler*, *Ostrinia nubilalis*). Bt maize varieties also exist designed to be effective against the Western corn rootworm (*Maiswurzelbohler*, *Diabrotica virgifera*).

In an article published in *Nature* in May 1999 John Losey et al raised serious concerns about the monarch butterfly (*Danusa plexippus*), which has a protected cult status in California and other US states. He argued the butterfly was harmed by the consumption of Bt maize pollen. The US intellectual and biotech critic Jeremy Rifkin took the story up and warned US agro-business would suffer a new „Vietnam“. Also *Time* magazine reported about the story, which quickly transformed into a topic for anti-GMO-campaigns. Greenpeace reported, that also 140 European butterflies were in danger because of Bt maize cultivation.

→ more of the legend:

www.greenpeace.de/themen/gentechnik/nachrichten/artikel/weniger_schmetterlinge_durch_gen_mais/

Behind the legend

Even though Bt toxin is very specific, some effects on non-target insects may be possible. Such „non-target effects“ are especially likely for organisms that are closely related to the target pest. To address this risk, numerous studies have been conducted around the world on the effects of Bt crops on all kinds of insects and other small animals. A good example is a widely publicized study conducted in the United States that suggested pollen from Bt maize harms the iconic monarch butterfly.

After an initial period of commotion, the concern subsided. The assertions of this study were only based on laboratory experiments that did not correspond to real conditions in the field. In nature, monarch butterflies do not feed on maize plants themselves, as does the European corn borer (*Maiszünsler*). The monarch is only affected if it feeds on wild plants dusted by Bt maize pollen. Wild plants covered with significant amounts of maize pollen are only found within a few meters of maize fields and only for a short period of the year. The effects this has on the ecology of the monarch are negligible at most.

Other studies, including research conducted in Germany and in Switzerland, have found no negative effects on non-target organisms. The organisms observed in the studies included spiders, lacewings, hover flies, beetles, and earthworms. The greatest effects on non-target organisms were always observed in fields of conventional maize, where the European corn borer is treated with chemical insecticides.

→ more of what's behind: <http://www.biosicherheit.de/de/archiv/2004/314.doku.html>

Arguments against the legend

- Bt maize cultivation does not at all harm the monarch butterfly and also it does not harm other „non target insects“ in a relevant manner compared with traditional agriculture.
- Studies of the potential influences of GM crops on „non target insects“ have been transformed by anti-GMO-activists into „proofs“ for new risks that do not exist.