

No GM crops and food!
A Handbook for Activists

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Authors : Navdanya

Illustrations : Pritha Sahai

Cover Photo : Vinay Aditya

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Navdanya

A-60, Hauz Khas, New Delhi - 110 016

Tel.: +91-11-2696 8077, 2685 3772, 2656 1868

2653 5422, 2653 2124

Fax: +91-11-2685 6795, 2696 2589

E-mail: vandana@vandanashiva.com, info@navdanya.net

navdanya@gmail.com

Website: www.navdanya.org

Printed by:

Systems Vision

A-199, Okhla Ph - I, New Delhi - 110 020

systemsvision@gmail.com



Dear Reader

This handbook informs you about genetic engineering (GE). It highlights the dangers that genetically modified (GM) crops and food pose to nature and people's health. And, most importantly, it invites you to join the growing movement, which says NO to genetically modified organisms (GMOs) and YES to organic food and farming.

A few multinational corporations push GM crops and food the world over. They claim that GMOs are absolutely safe. Various studies by independent scientists show that this is not the case. GMOs contain dangerous viruses and bacteria. GMOs spread uncontrollably. GM plants are able to genetically pollute and contaminate natural ones. GM food is a major health risk.

It is also said that GE feeds the poor and therefore is a must. It is not. GE threatens food security since it leads to monoculture (over 90% of all commercially grown GM crops are corn, soya, oil seeds and cotton). The most wide spread application of GE is to breed crops to be resistant to herbicides. This leads to increased use of herbicides, which causes loss of biodiversity since all "weeds" except the engineered plant die. But what is a weed to the multinationals is food, medicine or fodder for people in many countries including India.

In spite of the known hazards, GM crops have crept into Indian fields and GM food is bound to attack our stomachs. The government so far allows the commercial growing of genetically engineered cotton and field trials of GM mustard. On and off it considers to letting Food Aid containing a GM corn-soya blend into the country. It does not apply regulations or a labelling mechanism regarding GM seeds and food.

We therefore must and can act. Let's get together so that local communities – not corporations - are in control of agriculture and food production. We are many to say "Stop Bt cotton", "No commercial growing of GM mustard", "No import of GE contaminated Food Aid", and "Control and labelling system for seeds and food".

Summer, 2003

The Navdanya Authors

The future does not belong to GM crops and food – but to biodiversity, local seed keeping, organic farming and healthy food for all.

What it means

Biology – science that studies living organisms

Biotechnology – industrial use of biological processes

Genetics – teaching about hereditary characteristics of genes

GE – Genetic Engineering – technique to transfer genes from one living organism to another

GM - Genetic Modification - is another expression for Genetic Engineering, sometimes also called Genetic Manipulation or Gene Technology

GE crops/food – genetically engineered crops/food

GM crops/food – genetically modified crops/food - is another expression for GE crops/food

GMO – Genetically Modified Organism/**GMOs** – Genetically Modified Organisms

Living organisms are plants, animals, bacteria, viruses, etc. that can reproduce

Cell – is a unit of a living organism. Plants, etc. are made up of millions of cells. Inside every cell there are strings of so-called DNA

DNA - Deoxyribonucleic acid – a string which contains all genetic information regarding structure and function of organisms

Gene – is a segment of DNA - determines characteristics like growth, size, etc. of an organism. Genes pass on an organism's hereditary characteristics

Promoter – “material” added to a gene that is to be transferred from one organism to another. When the gene has reached the host organism it does not automatically become “active”. The promoter then acts like a switch and turns it on (according to scientist this is called “the promoter forces expression”)

Marker – provokes antibiotic resistance

Vector - material taken from a bacterium or a virus that serves as “vehicle” in transferring genes from one organism to another

Transgenic organism - organism with foreign genes put into it by genetic engineering

Bt Cotton – genetically engineered cotton that contains genes taken from a soil bacterium (*Bacillus thuringiensis*)

Pesticide – general term for chemical compounds such as:

Insecticide (kills insects and other “pests” that infest a plant), **Herbicide** (kills weeds),

Fungicide (against fungus)

Genetic Engineering (GE)

GE is a technique within biotechnology. Through GE a gene of one organism (plant, animal, etc.) is transferred into another one. The aim is to reproduce the characteristics of the transferred gene in the receiving organism.

How GE of a plant is done

Genetic engineering is not simply about taking a naturally occurring gene from one plant and inserting it into another. GE is a complicated process in which artificially constructed genes are transferred. In the laboratory, DNA from a plant cell is extracted and a gene that carries the characteristics to be introduced is isolated. A so-called promoter and other required materials (like the marker) are added to it. This artificial construct is then introduced into the cell that is to be engineered. To introduce it a kind of „transport vehicle“ that carries the construct from one organism to another is needed. This vehicle is called vector. Other methods include the “shooting” of constructed genes into a “host cell”.

Why GE is different from Traditional Breeding

GE is a highly artificial manipulation of genes. GE plants start in the laboratory. GE employs artificial genetic material that is introduced into plant cells. GE disrupts the natural order of genes within the host DNA. GE operates with combinations of genes that would never occur naturally.

Traditional breeding (or mating) never introduces genes that are foreign to the species. The only “manipulation” in mating is that “parent genes” are selected. Mating occurs naturally and a natural combination of the hereditary characteristics takes place.

Genetic Engineering and Traditional Breeding methods have nothing in common.

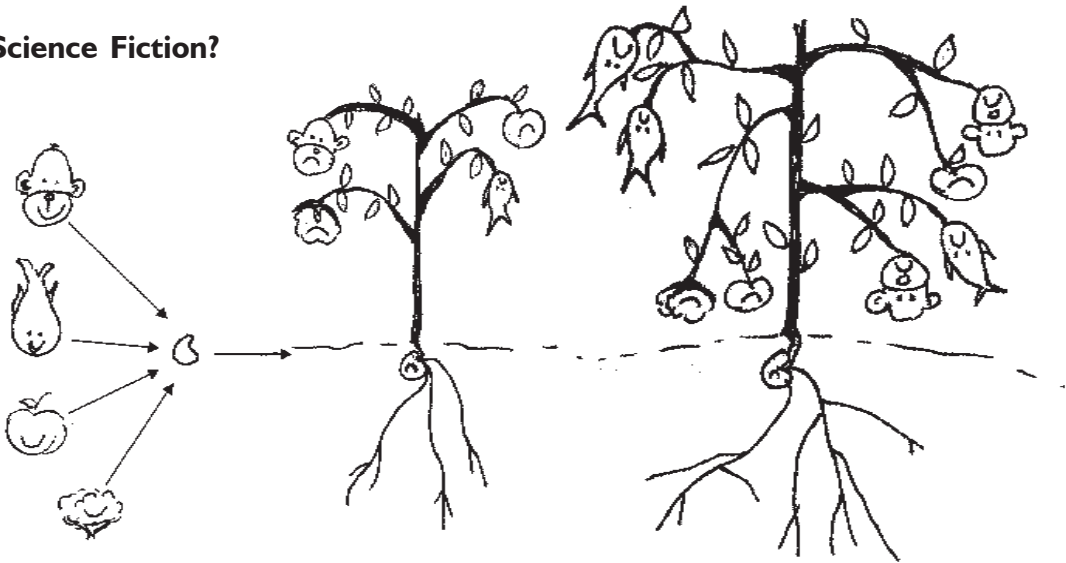
GE interferes with nature

Genetic diversity has been created for generations - but within limits: For example by crossing rice with a different kind of rice, tomatoes with a different kind of tomatoes, etc. Through genetic engineering scientists now create plants (or animals) by manipulating genes in a way that does not happen naturally. A plant can be engineered with genes taken from another species, from bacteria, animals or even humans. If released from the laboratory into the field, GMOs are capable to reproduce and interbreed with natural ones.

GE interferes with people

The promoters of GE in agriculture argue that plants (and animals) have been selected and manipulated for thousands of years, that GE just goes a step further and does not interfere with people's wellbeing. But GM constructs often contain genetic material of dangerous bacteria or viruses. GE food can contain toxins, allergens as well as antibiotic resistance genes. Genetic material is capable to cross the so-called species barrier. Therefore the possibility exists, that the toxins, allergens and antibiotic resistance of a plant are transferred to people eating GE food.

Science Fiction?



Are you a vegetarian?

Are you sure that no animal material has hit your veg meal?

Safety is just another word

It is not possible to accurately guide the insertion of a new gene. According to the martial language of GE, scientists “shoot” an engineered gene into a host cell. And what if the target is missed? It is also not possible to “guide” a newly inserted gene through its life circle.

*International corporations claim that GM crops and food are super-safe. Independent scientists point out the known and unknown risks of GE to the **environment** and our **health**.*

- *Nobody really knows how a genetically engineered plant reacts in the field - what it does to itself and its offspring's, to other plants, to insects, to soil and water. In brief: Nobody knows how GM crops pollute the environment.*
- *Nobody really knows what GM food does to people's health in the long run. Will there be new unknown illnesses? Cancer? Or “only” allergies and diarrhoea? Will people become “immune” against antibiotics because they eat food containing antibiotic resistance genes? Does this mean that formerly easily cured infections cannot be treated with antibiotic medication anymore? And will this lead to new epidemics?*

Remember the Green Revolution? For years we have been told that the use of chemical pesticides is completely safe. Today we know how pesticides affect our soil, our water, and our health. Now we are told that genetic engineering only brings benefit, no harm – even though studies and growing public anxiety point to the contrary. Do we have to let GM crops and food play havoc with the environment and our health for years – until it is “proven” that they are not as safe as we've been told?

If there's a will, there's a way to ban harmful pesticides. But nobody can ban or control GMOs once they are out. They are here to stay – irreversibly! For the better or worse – and the worst might be like a science fiction movie or a bad dream. But you can neither walk out on it nor wake up and find things are as they were before.

**GM crops and food are not safe –
not for the environment and not for people.**

The global antidote for GMOs

Multinationals like Monsanto globally push genetically modified crops - but certainly not to feed the hungry. Companies promote and patent GM crops for no other reason than monetary consideration: They manufacture and sell the agrochemicals to go with GM crops, they want to profit from the seed to the grain. Multinationals should never have the say over our crops and food. And they don't. Millions of farmers the world over are fully aware that they have to stay in control of their seeds and crops, and a growing number knows about the dangers of GMOs. Governments that really care for the well being of their people say no to GMOs. And consumers vote with their shopping baskets.

Where there are (no) GM crops

Soya, corn, oil seeds and cotton amount to over 90% of the world's commercial GM crop production. To a much lesser extent GM rice, wheat, vegetables, potatoes, flowers, etc. are produced. GE crops are predominantly grown in the US, followed by Argentina and Canada. Australia, South Africa and some other countries also allow the growing of certain GM crops.

A number of European, African and Latin American countries try not to allow the growing of GM crops for commercial use. Unfortunately no law and no border can stop GMOs from spreading. For example: Mexico does not allow the growing of GM maize but strains of Bt corn were found in some places. Brazil does not allow GM soya but it was smuggled into the country. In Europe some unapproved GM strains of maize and rapeseeds were detected in conventional seed stock.

The remedy to halt global contamination: Stop GM crops!

Where there is (no) GM food

GM ingredients can be hidden anywhere – from makkai ki roti to soup to baby food to biscuits and more. A lot of packaged food contains corn starch or soya lecithin, and lots of soya and maize are genetically modified. GM grains are also widely used for animal feed. The question lingers: Can they enter the human food chain? Last but not least, the World Food Programme has tried to dump Food Aid containing GM corn in many countries.

Being at the origin of the problem, every company in the world producing and selling GM seeds, crops and food should be obliged to clearly state that their product is genetically engineered and what it contains. Since this is not the case, governments have to take responsibilities. Many countries, especially in Europe, do not allow GM food to be sold. Some countries leave the decision to the consumers and have introduced or are about to introduce labelling practices for foodstuff where "GM ingredients" have to be declared. Also some big food manufacturers strictly avoid GM crops in their products since consumers, if given a choice, do not want to eat GM food.

GM food is dangerous to our health: The best cure is a global ban.

Free India from GMOs

Some GMOs have entered India. But that doesn't mean that they are here to stay! The industry tries to push more GM crops into Indian soil - the government and people can keep them out: Ongoing commercial growing can be prohibited and doors for new GM crop varieties shut. New field releases can be forbidden and GM oilseed and food aid banned. A label declaring GM substances of eatables will help GM food die a natural death.

It is possible to (re-) make India GE-free

Let's take a look at

- **Bt cotton:** In 2002 the government allowed Bt cotton to be grown commercially. Bt cotton is the first commercial GM crop in India.

The Bt cotton story is a hopefully never to be repeated example of legal violations: The Review Committee of Genetic Manipulation (GEAC) did not sanction the import of Bt cottonseeds. But field trials were started without the GEACs permission. And instead of burning seeds - as requested while carrying out GE trials - they were illegally multiplied.

- **GM mustard:** For several years large-scale field trials have been carried out. No commercial use is allowed so far.
- **RoundupReady:** Monsanto is pushing its herbicide called Roundup on Indian farmers and as such tries to prepare the ground for commercialising its RoundupReady GM varieties - soya, corn, wheat, vegetables, oilseeds - that are resistant to the Roundup herbicide. So far no commercial use of RR varieties is known in India.
- **Soya:** Ten thousands of tons of soybeans for oilseeds have been imported with no guarantee that they would not be contaminated with GM beans.
- **Bt corn Starlink:** A corn-soya blend containing the Bt corn Starlink has entered India in the form of Food Aid through the World Food Programme.

(You find more details about Bt cotton, GM mustard, Soya, RoundupReady and Starlink - and all the arguments why to say NO to them - in the following pages.)

- **Labelling:** So far no adequate food labelling system exists. If the government permits certain imports of food items with (even the slightest amount of) GMOs, they should be tested and clearly labelled, indicating the kind of GM substances a product contains.

Bija Swaraj – Stop Biopollution, Ensure Biosafety

The Bija Swaraj campaign by Navdanya demands to

- Stop the entry of GMOs in food and agriculture
- Test and label all imported food including food coming as aid

Patents

Multinational companies have plants, animals and even individual genes patented in order to make profit and ensure control over agriculture and markets.

What is a patent?

If somebody invents a machine, a tool, etc. she or he can apply for a patent at her/his government's patent office. If such a patent is issued, it guarantees the inventor the exclusive right to use, to manufacture and to sell her/his invention for a fixed period of time.

Intellectual Property Rights

Over the last years industrialised countries have increasingly granted patents for existing plants as well as genetically engineered plants and their seeds to the GE industry. These give companies the right to use such plants as a private property - and they consider themselves as the legitimate owners. Corporations now claim "intellectual property rights" which means they can withhold patented plants/seeds from farmers. According to corporate thinking, farmers world-wide are not allowed to replant or exchange patented seeds, even though seed exchange is something they have done for generations. If farmers want to use patented seeds they have to pay the corporations for it. If they don't pay but still grow such seeds - on purpose or because their crops have been "infiltrated" accidentally by an engineered organism - they can be accused and fined.

Nobody owns life

Industry cannot own living organisms. Companies have not invented plants and other life forms. Also an engineered plant is not an invention but merely a "modification". Farmers have cultivated and further developed plants, seeds (and bred animals) over centuries. If life is patented and in the hands of corporations, farmers, consumers and even governments would become completely dependent. They would have no more say to what is grown or bred, no more say to what kind of food they want. And that shall never happen.

Bija Swaraj – Stop Biopiracy

Industry wants to lay their hands on everything. Would you believe that Conagra has a patent on chakkis making chapati atta, Monsanto is taking patents on GM rice, Syngenta tried hard to get at the Asian rice collections, and RiceTec wants to patent Basmati rice!

The Bija Swaraj campaign, launched by Navdanya, demands that

- **Indian laws do not legalise patents on seed and food**
- **TRIPs is reviewed to exclude patents on seed and food**

No to patents on life! Seed and Food Sovereignty is our fundamental right.

Bt Cotton – Failed promises



Bt cotton is genetically engineered cotton. It contains genes taken from a soil bacterium (*Bacillus thuringiensis*). Bt cotton has promoters that create high doses of toxins, which are released in all parts of a plant during the entire life span of the crop. The principal aim of these toxins is to control bollworm, a widespread cotton pest.

Since 1998 Monsanto-Mahyco has been engaged in Bt cotton field trials in India. In spring 2002 the Genetic Engineering Approval Committee (GEAC) of the Ministry of Environment and Forest gave clearance for the commercial planting of three Bt cotton varieties in seven states. The clearance was granted in spite of the facts that

- Experiences with Bt cotton in the US, China and Australia showed that it failed to control the bollworm, the principal target pest it was introduced for. (Because the plant produces Bt toxin throughout its life, the bollworms are constantly exposed to this toxin and soon become resistant to it, while beneficial species such as bees, etc. get killed.)
- The GEAC was aware of Monsanto's violations of biosafety guidelines during the trials.
- A Supreme Court case challenging these trials was still ongoing.

Cotton is a symbol of India's independence. Who wants to be colonised by Bt cotton?

Bt cotton was cleared on the ground that it had been fully tested in Indian conditions, that it would not require pesticides, and that yields and therefore farmers' incomes would be higher. None of these promises were fulfilled as a study undertaken by the Research Foundation for Science, Technology and Ecology in fall 2002 showed.

No pest resistance: Bt cotton was devastated by pest attacks – by bollworm as well as by sucking pests. Farmers had to make several sprays against bollworm and other pests.


No higher yield: Yields could reach a maximum of 4 quintals per acre, often it was less – a far cry from the 15 quintals per acre as claimed by the Bt cotton sellers. Non-Bt hybrid cotton could yield between 12-15 quintals. Bt cotton plants held around 60 bolls per plant as compared to non-BT ones with 200-250 bolls. Bt plants matured and died before non-Bt plants.

No higher income: Seeds and pesticide costs for Bt cotton are higher than for other hybrids - while desi varieties cost little since own seeds

are saved and no chemical pesticides are used. Costly inputs and low yields made the Bt cotton farmers lose crores of rupees in one cropping season. What added to the disaster was the low rate farmers could fetch for their crop because Bt plants produced short staple cotton (short fibres) with the lowest market value.

No biosafety: The GEAC indirectly admits that Bt cotton is not safe since it has stipulated that farmers sowing Bt cotton must plant 20% of their fields with non-Bt varieties. This should help to minimise the pests' resistance to Bt toxin and to check genetic pollution and contamination through cross-pollination. (There is great confusion as to what is the distance of pollen transfer. It varies from 2 metres to 3 miles!) Not GEAC, not Monsanto-Mahyco but the farmer is made responsible to meet these "safety" requirements. Every farmer who bought Bt cotton seeds was made to sign that in case he wouldn't follow the conditions laid down by GEAC he would attract penalties under the Environment Protection.

GM Mustard – Too many risks



Mustard/Rapeseed (rai, sarson) is an important oilseed crop. It is grown in rotation with other crops or intercropped with wheat, barley or gram.

GM mustard contains genes taken from outside sources such as different bacteria (including a toxic male sterile gene to stop pollen production) and the tobacco plant. GM mustard is engineered to be resistant to the so-called glufosinate herbicide. When a field is sprayed with this herbicide all plants except the GM mustard die.

Since 1998, multinational companies PGS-Aventis-Bayer and the Indian ProAgro have carried out field trials with GM mustard. The industry is putting pressure on the GEAC to have GM mustard cleared for commercial planting. Due to demands from various citizens groups, including Navdanya, GEAC has not yet given the respective green light.

Why mustard is important

Mustard is vital to the multi-faceted Indian food and health culture. Mustard/Rapeseed is highly pest resistant and grows even in dry regions, which makes it a cheap and safe crop for farmers. Crores of Indians use mustard oil daily. Mustard is also widely used in food preparations (saag), as a medicine and as a spice.

Why industry pushes GM mustard

The companies claim that GM mustard yields 20% more seeds and oil thus providing farmers with additional income. So far researchers say that there is no proof to ProAgros's claims to higher yields. The real reason for pushing GM mustard is that industry wants to sell the Bayer herbicide glufosinate to be used on GM mustard in a big way.

Why to say NO to GM mustard

- GM mustard could contaminate existing mustard varieties. It could also lead to "super weeds" - weeds, which after having been exposed to glufosinate for some time, become resistant to it. Such weeds could destroy traditional mustard varieties with devastating results for the Indian oilseed and food security.
- Mustard is a 100 per cent food crop. It will therefore enter the food chain with unforeseeable effects. The industry itself acknowledged that no extensive tests regarding the safety of GM mustard oil and other edible products had taken place.

Possible effects on people's health

Antibiotic resistance: During the genetic transformation of mustard an antibiotic called kanamycin is added. This antibiotic is also

used to treat infections in humans. Due to increased exposure to kanamycin through GM mustard products, infections could become resistant to it – which means the kanamycin medicine cannot cure a sick person anymore.

Allergies: New gene constructs with genes taken from different sources not related to each other can cause allergic reactions. If a person suffering from such a reaction cannot get prompt and adequate medical help this can be dangerous

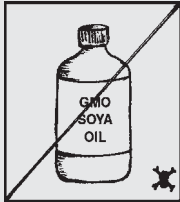
Fatal toxic residues in food: GM mustard is engineered to be resistant to glufosinate. This substance is dangerous to humans and animals because it affects the nervous system. Studies on rats have shown that it can cause deformities in rat embryos. And what about people?

Indigenous mustard – not GM soya

In August 1998 adulterated mustard oil sadly led to a “dropsy” epidemic, which killed dozens and affected thousands of people. Just before the epidemic, the government had announced that it would import one million tons of soybeans as oilseeds. Since there was no guarantee that these beans would not be genetically engineered, and also because there was no need to import oilseeds, citizen groups and the Ministry of Agriculture challenged the decision. But by the end of August, the government used the dropsy epidemic as a pretext and announced that soybeans would be imported freely and the sale of mustard oil would be banned.

A multiple threat

- Unadulterated mustard oil is a healthy and century-old Indian commodity. It is grown and processed locally and is available to everybody at low cost. The mustard oil ban was therefore a massive threat to people’s food habits, and a loss to mustard growers and consumers.
- Soya oilseed is an imported commodity. Soya lies mainly in the hand of a few multinational companies. It is therefore a threat to Indian farmers and consumers, which lose control over their oilseeds. And since large parts of the world’s soya crops are genetically modified but not necessarily labelled as such, there is the chance of consuming GM soya oil without knowing it.



Monsanto’s GM Soya

GM soya is made up from three new genes - taken from bacteria, from a petunia and from a cauliflower mosaic virus. This unusual genetic combination makes Monsanto’s GM soya named Roundup Ready-Soya resistant to Monsanto’s broad-spectrum herbicide Roundup (see next page). Monsanto’s soybean is the first crop ever to be sold as a food ingredient that has been genetically modified.

Health hazards


Natural soya oilseeds and soya products are of great nutritional value in many countries. But GM soya is an unnatural food that penetrated the diet of people, and in the form of soya-cakes also animal fodder. The industry makes us believe that GM soya is healthy and safe. But scientists have warned that the added “ingredients” could cause more allergens – and therefore allergies

could be on the rise. There is proof that allergens can be transferred to plants through genetic engineering: Scientists tried to add a gene from a Brazil nut to soybeans but the soya had to be withdrawn because it caused allergies in humans. Nuts are a well-known allergen and can easily be tested for. Others are unknown – until they hit. And with the widespread use of GM soya products they are bound to do so.

Warning: GM soya oil is adulterated oil! It is full of strange genes from bacteria to petunia to a cauliflower virus.

Roundup - Ready for what?

Monsanto has patented a series of crop varieties including seeds, which all come under the name of RoundupReady, i.e. RoundupReady maize, RoundupReady soya, etc. These varieties are resistant to Monsanto's own herbicide Roundup, so when sprayed every plant or "weed" with the exception of the RoundupReady-crop dies.



Roundup is a broad-based herbicide. It contains glyphosate (a herbicide) and so-called surfactant. When Roundup is sprayed the "surfactant" prevents the liquid herbicide from forming into drops that would fall off the "surface" of the plant. This helps the Roundup to penetrate the plant cells.

RoundupReady are genetically engineered varieties like maize, soya, wheat, vegetables, oilseeds, etc. that are not affected by the use of the Roundup herbicide.

Hazardous Roundup

Herbicides leave their adverse imprints on the ecology and people's health - and Roundup makes no exception.

Biodiversity: What industry considers a weed, is very often a food or a medicinal plant - which gets killed by Roundup. Herbicides also reduce the resistance of plants to fungal diseases, leading to their withering or sudden death.

Beneficial species: Studies show that Roundup is toxic to insects, earthworms, birds and fish.

Soil: Glyphosate is very persistent, which means, it stays in the soil for a long time.

Water: Herbicides can leach into surface water and contaminate it.

Health: Glyphosate herbicides are marketed as being harmless, but laboratory tests tell a different story. Studies in rats show an increased frequency of liver and other tumours, while studies of people exposed to glyphosate herbicides showed an increased risk of miscarriage and the cancer non-Hodgkin's lymphoma. In 2000, when the US destroyed the drug-crops in Southern Columbia with Roundup, animals within a ten-km zone died. Even the crops in neighbouring Ecuador were badly affected, and people showed symptoms of glyphosate poisoning such as diarrhoea, cough, skin rash, eye irritations, etc.

Wolf in sheep's clothing – a tale from Rajasthan

Monsanto has launched a marketing offensive in the drought-prone, maize-growing regions of Rajasthan - disguised as a programme to improve the living standard of small and marginal farmers. By co-opting an NGO and the College of Agriculture, "solution packages" in the form of Monsanto maize varieties are pushed and farmers are encouraged to take up industrial maize farming. The varieties used are not (yet) genetically engineered. But they are chemically intensive hybrids "in need" of Roundup herbicide. Thus Monsanto prepares the ground for the later introduction of its next package: RoundupReady maize plus Roundup.

The company's claim of ensuring food security in the region is false: Monsanto varieties need extra water and such contribute to drought; yields are lower than promised and production costs much higher than for formerly used local varieties. Monsanto - in a benefactor's clothing - sets another trap for poor farmers to fall into.

GM maize in Food Aid



Starlink (manufactured by the US company Aventis) is genetically modified maize, which contains a gene to fight the corn borer pest.

Starlink was not approved for human consumption by the US Environmental Protection Agency (EPA) on the ground that it contains allergens that can cause nausea and shock to people. Starlink was therefore allowed to be used as animal feed only. When, in spite of that, Starlink was detected in foodstuffs manufactured by a well known food company the US government immediately recalled hundreds of such products. And the EPA definitely declared Starlink as unfit for human consumption.

Starlink in Food Aid

While Starlink disappeared from the supermarkets' food shelves, it appeared in corn-soya blends of Food Aid propagated by the World Food Programme and was distributed mainly by US Aid Organisations. Numerous countries in Asia, Africa and Latin America protested or refused this "aid", which was supposed to feed the weakest of society.

Starlink in India

Two aid agencies, CARE-India and Catholic Relief Services had imported GM corn-soya blend for emergency relief after the Orissa cyclone. The Research Foundation for Science, Technology & Ecology tested samples of this blend and found that it contained GM corn. The National Alliance of Women for Food Rights then started a campaign to stop the dumping of GM food in the name of relief and aid. The government responded by banning such imports. In early 2003 the same agencies tried once more to put pressure on the government to allow the import of tons of Food Aid containing the same corn-soya blend.

No animal feed for the hungry!

There is no need to import food – and certainly not GM maize. If aid agencies really want to help the Indian poor, they can buy nutritive crops for the needy right here. Godowns in India are full of food grains – more than 50 million tonnes are lying idle while thousands face starvation and millions of people go hungry every day.

It is a scandal that the poor and vulnerable – children, old people, pregnant women – are dependent on Food Aid. And even more so when this aid contains ingredients declared fit for non-humans only.

No to GM crops and food

After looking into GM crops and food there's only one conclusion to be drawn:

GM crops and food are dangerous and useless.

Let's summarise:

GM crops and food

- **Are a major health risk**
Resistance to antibiotics, allergies and known (and yet unknown) illnesses
- **Destroy biodiversity**
Herbicides are poisonous for beneficial species and breed new resistant pests
- **Spread biopollution**
Contamination of natural varieties and organic crops
- **Enslave people**
Farmers and consumers lose control over seeds, agriculture and food
- **Increase hunger**
GM crops require high inputs not matched by yields. And loss of biodiversity means loss of food.

Genetic engineering does not only not fight world hunger but it prevents the large-scale shift towards sustainable agriculture.

Let's reverse this trend (you find some suggestions how to do that in the following pages). Let's work towards organic farming and people's right to sound, accessible and affordable food. And let's firmly say

No to GM crops and food!

How to ensure biosafety

Some organisations and institutions the world over, including some governments, inform the public about the effects and dangers of GMOs and try to protect the environment and people's health from GM crops and food.

A global effort to ensure biosafety has been started. The so-called Biosafety Protocol (or Cartagena Protocol) adopts international rules regarding GMOs. In order to be really effective, more countries have to join and put into practice this initiative - but it is certainly a good step in the right direction.

The Biosafety Protocol

Important points:

- The Protocol seeks to protect biodiversity and people's health from GMOs
- Countries should be provided with the necessary information that enables them to make their own decisions regarding GMOs
- A country has the right to restrict or ban the import and the use of GMOs

India signed the Protocol in autumn 2002. But there is no visible sign that the government actively seeks to protect biodiversity and people's health. On the contrary: Instead of stopping Bt cotton that proved to be a failure, the Ministry of Agriculture pretends it was a success and commercial growing should be continued. No testing, labelling or, if necessary, stopping of imported food items take place. And only because of Navdanyas and other citizens groups' vigilance and protests the government withheld further import permits for Food Aid containing Starlink.

**A signature is not enough –
the Biosafety Protocol has to be put in practice.**

What YOU can do

It is YOUR RIGHT to

- Know whether you sow GM seeds and eat GM food
- Say NO to GM crops and food
- Demand GM free seeds, crops and food
- Ask the government to protect you from harmful GMOs

Get to know about GM crops and food:

- ◆ Read this booklet and discuss GMOs with your family, your neighbours and other commune members
- ◆ Talk about agriculture and the food situation in your commune
- ◆ Make a list of your village crops
- ◆ Look what is available in your local market or shops
- ◆ Contact your panchayat to find out whether GM crops or food have ever entered your village.
- ◆ **Join the Jaiv Panchayat and other Navdanya initiatives (see pages 18/19). Get to know how to fight GMOs, and how to ensure sustainable agriculture and biodiversity.**

Become active:

As a farmer

- ◆ Organise farmers meetings
- ◆ Learn (or learn more) about organic farming, seedkeeping, making compost, etc. Attend Navdanya courses; arrange farmers' exchange visits, etc.
- ◆ Form an organic farmer group. It can be on an informal group. It could also be a co-operative.
- ◆ Start your own community seed bank
- ◆ Keep seeds and exchange seeds instead of buying them - that saves the biodiversity and your money
- ◆ Help each other out in the field – with weeding, looking for harmful pests, information.
- ◆ If you produce more than you need for your home consumption, think about how to market your grains, pulses, grams, spices, vegetables, fruits, etc.
- ◆ Join existing organic farmers marketing outlets or start your own
- ◆ **Join the Navdanya campaigns. Keep GM crops and food out of your village.**

As a consumer

- Organise consumers meetings
- Encourage organic farming and buy organic products
- Help to start market outlets for organic food
- Spread the word about organic food – so others buy it too
- Do not buy any product you suspect to contain GMOs
- **Join the Navdanya movement, and buy Navdanya products.**

Farmers and Consumers:

- Form community producer-consumer groups where the farmer and the buyer share the responsibility
- Get in touch with other organic producers/consumers, see how they do it, and support each other
- **Join Navdanya which links up farmers and consumers.**

Demand from your government to

- Establish binding regulations regarding import, handling and use of GMOs in India
- Label seeds, oilseeds, grains and food items stating all ingredients contained because it is the people's right to choose crops and food that are free from GMOs
- Make sure that no GMOs are imported or released that are known to be dangerous elsewhere
- Refuse Food Aid containing Starlink corn or any other substance which is considered unfit for human consumption
- Take utmost precautions when considering whether or not to conduct field trials with GE seeds
- Abstain from the commercial growing of unsafe GE crops
- Invest in organic farming instead of GE agriculture
- Make it clear to multinational corporations, that the government and people decide about GMOs, not the companies



Navdanya

Navdanya has started as a programme of the Research Foundation for Science, Technology and Ecology. Since 1987 Navdanya has been saving seeds and promoting chemical-free organic farming.

Navdanya works with local communities facilitating seed conservation and seed exchange of traditional varieties. It has helped to establish over 20 seed banks in various states and has rescued more than 1500 varieties of rice, and hundreds of varieties of pulses, millets, oilseeds and vegetables. Navdanya works with local organisations in Uttaranchal, Uttar Pradesh and West Bengal. It has also worked with several organisations in Southern India, which now carry on the work independently.

Navdanya encourages initiatives undertaken by local people for a sustainable agriculture and the control over their food. Navdanya works from the field to the table, from the farmer to the consumer. A few years ago it started with the direct marketing of organic food products.

Navdanya informs policy makers as well as the public about the dangers of monoculture, agrochemicals and genetic engineering as promoted by industry. It says no to GM crops and food, and no to patents on life.

Navdanya has a vision – that every species has a future, every farm is free of toxins, and every person is free from hunger.

FOR ACTIVISTS – FOR YOU

Navdanya initiatives at a glance

Jaiv Panchayat - Living Democracy Movement, launched by Navdanya May 5, 1999. Over 1000 villages have asserted their rights and vowed to conserve and protect their biodiversity.

Diverse Women for Diversity (DWD) is an international ecofeminist initiative for the defence of biological and cultural diversity. In India DWD articulates its commitment through the **National Alliance for Women's Food Rights** which is a leading force in the movement against GMOs.

Bija Swaraj

The Bija Swaraj campaign by Navdanya demands to

- **Stop Biopollution, Ensure Biosafety:**
Stop the entry of GMOs in food and agriculture
Test and label all imported food including food coming as aid
- **Stop Biopiracy:**
Indian laws shall not legalise patents on seed and food
TRIPs have to be reviewed to exclude patents on seed and food

Anna Swaraj

At the Anna Panchayat (Public Tribunal on Hunger) in May 2001, Navdanya initiated the campaign for food rights and food sovereignty and for a decentralised democratic and sustainable food system.

Jal Swaraj

In December 2001 Navdanya launched the campaign for Water Democracy to defend people's water rights and resist privatisation of water.

Campaigns against patents

- **Neem** - resulting in victory in May 2001
- **Basmati rice** - striking down the biopiracy claims in summer 2001

Navdanya Biodiversity Conservation and Organic Farm, Doon Valley

Grows over 650 plant varieties, keeps an important seed bank and holds workshops and training camps for farmers.

Bija Vidyapeeth – Education for Earth Citizenship

Courses in sustainability and diversity imparted by leading thinkers at Navdanyas organic farm.

Navdanya Direct Marketing of Organic Products

Markets a wide range of organic products – directly from the farmer to the customer. Delivers to subscribing members and runs a public sales outlet cum café in Dilli Haat, New Delhi.

It is very important that more and more people fight GMOs and stand up for biodiversity and wholesome organic crops and food.

**Everybody counts!
So join the movement.
Get in touch with Navdanya.**

