DO WE NEED GM CROPS TO FEED THE WORLD?

We already produce enough food to feed 10 billion people, which is the number our population is predicted to reach by 2050. Every year, one third of all the food produced around the world is wasted.

Hunger is caused by poverty and inequality. GM crops do not help solve these problems. In fact, GM seeds are patented, owned and controlled by a few large corporations. This means that GM seeds cost more money than non-GM seeds, and farmers have to buy seed every season instead of saving their own seed.

Most GM crops are used for animal feed, processed food ingredients, fibre and even biofuel. There is no evidence that GM traits inzcrease crop yields, and GM crops are not putting more money into farmers' pockets.

HOW CAN I AVOID GM FOODS?

Our government does not require labeling. But you can still make a choice:

1. Buy certified organic food. Genetic modification is prohibited in organic farming.
2. Avoid processed food with corn, canola and soy ingredients.
3. Buy cane sugar or organic sugar to avoid sugar from GM sugar beets.
4. Choose products with the "Non GMO Project Verified" seal.
5. Avoid farmed salmon to avoid GM Atlantic salmon.
6. Support farmers who reject GM crops: buy food directly from farmers who do not plant GM corn, canola or soy or use GM grains for meat, dairy or egg production.

MORE INFO AT CBAN.CA/GMFOODS

CANADIAN BIOTECHNOLOGY ACTION NETWORK

CBAN provides the latest research, updates and action on GM foods, crops and animals in Canada.

CBAN MEMBERS: Canadian Organic Growers, Council of Canadians, Ecological Farmers of Ontario, Ecology Action Centre Nova Scotia, Growers of Organic Food Yukon, No More GMOs Toronto, Greenpeace Canada, Inter Pares, National Farmers Union, GMO Free PEI, Organic Agriculture Protection Fund of SaskOrganics, GE Free BC, Union Paysanne, USC Canada, Vigilance OGM.

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CBAN'S QUICK GUIDE TO GENETICALLY MODIFIED FOODS

CBAN.CA

SEPTEMBER 2023

WHAT IS GENETIC MODIFICATION?

Genetic modification (GM) – also called genetic engineering - is the introduction of new traits to an organism by making changes directly to its genetic makeup, e.g. DNA, through intervention at the molecular level.

With genetic engineering, scientists can change the traits of plants and animals by inserting DNA from foreign species or the same species; deleting DNA sequences or triggering new mutations; or introducing genetic material to silence genes.

Unlike conventional breeding, genetic engineering is a laboratory technology that enables the direct transfer of genes between organisms in different species or kingdoms that would not breed in nature, and the introduction of new sequences that do not exist in nature. New gene editing techniques can also produce changes in areas of the genome that are otherwise protected from mutations.

"Gene editing" techniques, such as CRISPR, are powerful new genetic engineering techniques.

Gene editing can create genetic changes with or without adding DNA from another species. CRISPR can break DNA at specific locations in order to delete DNA or to trigger the cell's own repair mechanism which, by making errors in repair, creates mutations that result in new genetic changes ("edits") for researchers to choose from.

Gene editing is often described as precise but enzymes used in gene editing can cut DNA in the wrong spots and create "off-target" mutations. Intended changes can also cause unintended effects in the edited organism because genes and their protein or RNA products act in networks and not in isolation.

The biotechnology industry argues that gene editing should not be classified as genetic modification, and should not be regulated or labelled. However, gene editing raises the same risk questions as earlier GM techniques, and the same environmental, social, economic and ethical concerns.

GM CROPS GROWN IN CANADA

Crop	Trait	Where on the shelves
01 CORN	Insect resistant, herbicide tolerant	Corn flakes • Corn chips • Cornstarch • Corn syrup • Corn oil and other corn ingredients in processed foods • Sweeteners like glucose and fructose • Eggs, milk and meat* • Some sweetcorn
02 CANOLA	Herbicide tolerant	Canola oil • Eggs, milk and meat*
03 SOY	Herbicide tolerant	Soy oil • Soy protein • Soy lecithin • Tofu • Soy beverages • Soy puddings • Eggs, milk and meat*
04 SUGAR BEET	Herbicide tolerant	Sugar
05 ALFALFA	Herbicide tolerant, low-lignin	A small amount is grown to feed dairy cows and other farm animals. Not grown for sprouts.

*Many animals used to produce eggs, milk and meat are fed corn, canola and/or soy

GM FOODS IMPORTED TO CANADA

Food	Grown	Where on the shelves
06 COTTON-SEED OIL	U.S.	Cottonseed oil • Vegetable oil in processed foods such as potato chips
07 PAPAYA	U.S. (Hawaii)	Papaya in fruit juices and other processed foods
08 SQUASH	U.S.	Some zucchini • Yellow crookneck and straightneck squash
09 SALMON	U.S.	Some farmed salmon sold in Canada is now GM Atlantic salmon

NEW GM FOODS ON THE MARKET

Food	Trait	Where on the shelves
10 APPLE	Non-browning	NOT YET IN CANADA
11 POTATO	Non-browning, less acrylamide	NOT YET IN CANADA
12 PINEAPPLE	Pink coloured flesh	Whole fruit in some grocery stores

CBAN.CA/GMFOODS FOR UPDATES

ARE GM FOODS SAFE TO EAT?

We don't know what, if any, impacts GM food could have on our health. There are still many unanswered safety questions and there is no scientific consensus on the safety of GM foods.

Government scientists at Health Canada review the safety of some GM foods, but not all. Many new gene edited foods can be put on the market without any Health Canada safety checks.

There are very few long- term, independent tests on GM foods. Most of the safety data on GM foods is confidential because it is produced by companies and is not peer-reviewed by independent scientists. Health Canada does not do its own testing.

There is no mandatory labeling of GM foods in Canada, and no tracking or monitoring of possible health impacts.

WHAT ARE THE ENVIRONMENTAL RISKS?

Once GM organisms are released into the environment they are difficult or impossible to control or recall. Contamination is a major problem because genes from GM crop plants can move around through seeds and pollen. Genetic pollution is irreversible living pollution that self-replicates.

Since the introduction of GM crops, herbicide sales in Canada rose by 234% (1994-2020), and new herbicide-resistant weeds are spreading.

WHO OWNS GM SEEDS?

GM technology facilitates corporate control because patents on genetic sequences mean that corporations can own seeds and other living organisms. In 2018, chemical giant Bayer bought Monsanto, the world's largest seed and biotech company. Now Bayer is the largest seed company and second largest pesticide company. Four companies now control over 60% of both the global seeds and pesticide markets.