

COSTS OF HERBICIDE-RESISTANT WEEDS

The major benefit that GM herbicide-tolerant crops offered farmers was simplified weed management. However, the increased use of herbicides on GM crops has led to the emergence and spread of herbicide-resistant weeds, which are reversing this benefit and creating new costs and complications for farmers.

There are now five species of glyphosate-resistant weeds in Canada. The biology and geography of each of these weeds shapes how easily they develop resistance, their impact on crops, and how difficult they are to control.

As a response to glyphosate-resistant weeds, biotech companies have developed GM crops that are tolerant to the herbicides 2,4-D and dicamba. This will increase pesticide use even more, and spread even more herbicide-resistant weeds.

GM CONTAMINATION COSTS FARMERS

Once released into our environment, GM plants can be impossible to control or recall. This contamination can come with a high price for farmers.

- GM flax contamination in 2009 temporarily closed Canada's export markets, hit flax prices, and cost the flax industry almost \$30-million.
- GM canola contamination has meant that most organic grain farmers in Canada have lost the ability to grow canola.

The release of future GM crops such as GM alfalfa and GM wheat would threaten the livelihoods of many farmers in Canada.

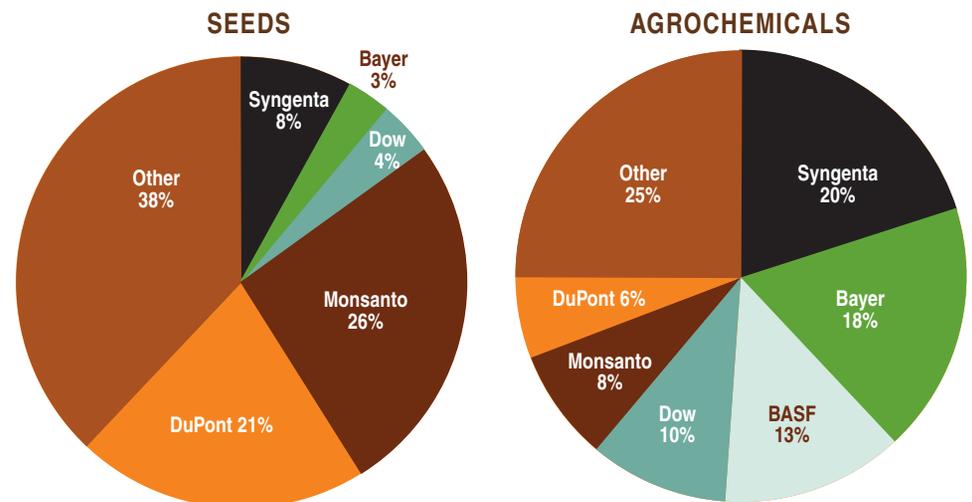
Farmers in Canada are not consulted before GM crops are approved, and the Canadian government does not assess the economic risks and benefits.



Farmers are the main customers of genetically modified (GM) crops. But, after twenty years, GM crops have profited biotech companies, not farmers.

Markets for GM crops are dominated by just a few seed and agrochemical companies. The high level of corporate concentration in the seed market has meant higher prices and limited choices for farmers. Legal controls, such as patents on genetic sequences, have meant that farmers cannot reuse, save, share or sell GM seeds, but have to buy them from seed companies every year.

CORPORATE CONTROL IN SEEDS AND AGROCHEMICALS MARKETS



Source: ETC Group, 2015



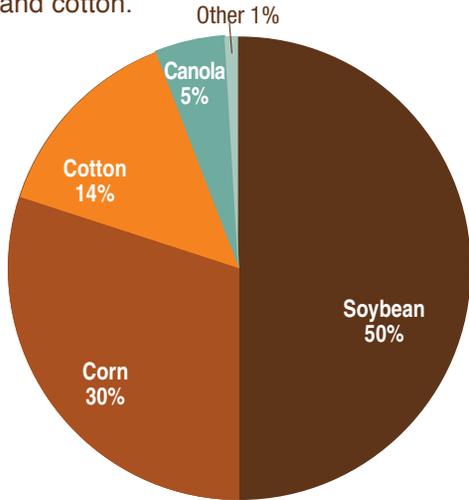
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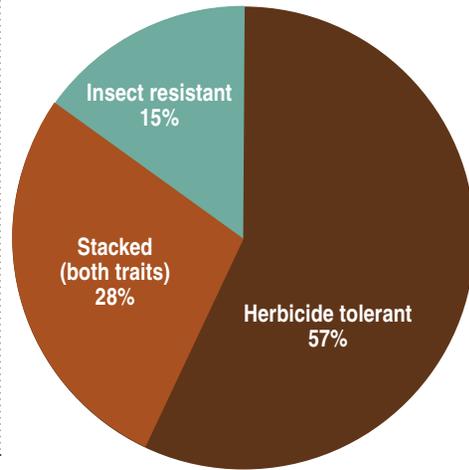
GM CROPS HAVE NOT INCREASED YIELDS

Almost 100% of all the GM crops in the world are engineered to be herbicide-tolerant and/or insect-resistant. There is no GM trait for higher yield.

Four GM Crops are 99% of the world's GM crops: corn, canola, soy and cotton.



Two GM Traits In total, 85% of the world's GM crops are herbicide-tolerant.



Yields of crops that have GM and non-GM varieties have increased at a similar rate. There are no clear patterns to show that yields for crops with GM varieties have increased more than those of non-GM crops. Yield increases in the past two decades are due to a number of factors other than GM traits.

GM SEEDS COST MORE

Patented GM seeds are significantly more expensive than non-GM seed.

- Seed prices in Canada have increased in Canada from 2.5% of farm expenses in 1981 to 4.6% in 2014.
- The cost of seed in Saskatchewan increased from \$50-million in 1981 to \$350-million in 2011.
- In Alberta, seed costs of GM canola have risen faster than those of non-GM canola, and other major crops such as non-GM wheat and barley.
- GM corn seed in the US cost 87-106% more than non-GM corn seed in 2010.
- In India, GM cotton seed costs 3 to 8 times more than non-GM cotton seed.
- In South Africa, the price of GM corn seed is 2 to 5 times the price of non-GM seed.

For the FULL REPORT see GMOinquiry.ca/farmers

GM CROPS HAVE NOT INCREASED FARMER INCOMES

Farm expenses, and particularly seed prices, have risen steadily over the past twenty years, chipping into farmers' net incomes.

Gross farm income in Canada has increased over the past two decades but realized net income (the income remaining after farm expenses are paid) has not changed significantly.

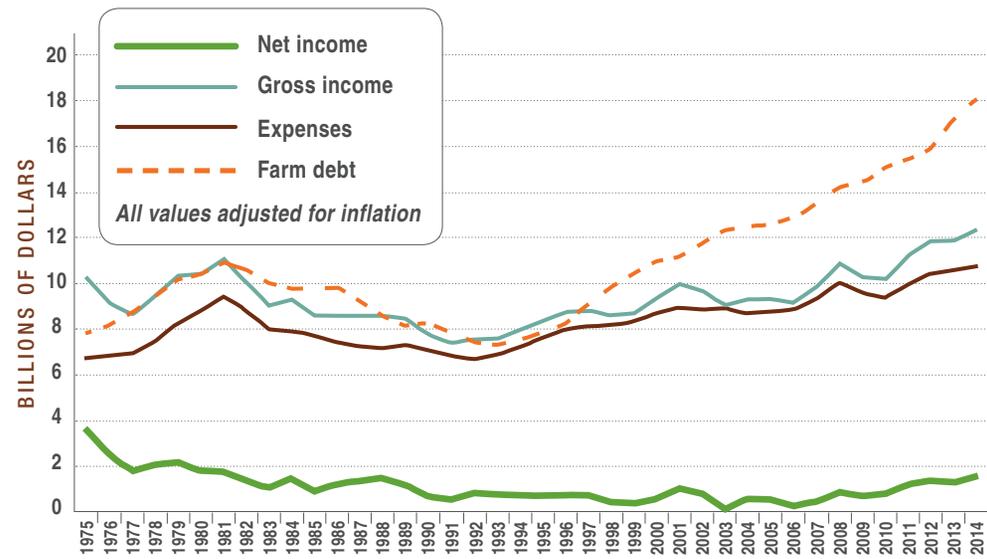
FARM INCOME IN CANADA IN 2014

Total gross farm income:	\$57.4 billion
Total farm expenses:	\$50.2 billion
Total net farm income:	\$7.3 billion
Total farm debt:	\$84.4 billion

Data from Statistics Canada, 2015. All values are in 2014 dollars.

GM crops are not putting more money into the pockets of Canadian farmers

FARM INCOME, EXPENSES, AND DEBT IN CANADA (1975-2014)



Data from Statistics Canada, 2015

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