HOUSE OF COMMONS
CHAMBRE DES COMMUNES
CANADA

# GENETICALLY MODIFIED ANIMALS FOR HUMAN CONSUMPTION

## Report of the Standing Committee on Agriculture and Agri-Food

**Pat Finnigan**
**Chair**

**DECEMBER 2016**

**42nd PARLIAMENT, 1st SESSION**

# GENETICALLY MODIFIED ANIMALS FOR HUMAN CONSUMPTION

## Report of the Standing Committee on Agriculture and Agri-Food

**Pat Finnigan**
**Chair**

**DECEMBER 2016**

**42nd PARLIAMENT, 1st SESSION**

# STANDING COMMITTEE ON AGRICULTURE AND AGRI-FOOD

**CHAIR**

Pat Finnigan

**VICE-CHAIRS**

Bev Shipley
Ruth Ellen Brosseau

**MEMBERS**

David Anderson
Pierre Breton
Francis Drouin
Jacques Gourde
Lloyd Longfield
Alaina Lockhart
Joe Peschisolido

**CLERKS OF THE COMMITTEE**

Paul Cardegna
Georges Etoka

**LIBRARY OF PARLIAMENT**

**Parliamentary Information and Research Service**

Frédéric Forge, Analyst
Khamla Heminthavong, Analyst

# THE STANDING COMMITTEE ON AGRICULTURE AND AGRI-FOOD

has the honour to present its

**FOURTH REPORT**

Pursuant to its mandate under Standing Order 108(2), the Committee has studied Genetically Modified Animals for Human Consumption and has agreed to report the following:

# TABLE OF CONTENTS

# GENETICALLY MODIFIED ANIMALS FOR HUMAN CONSUMPTION

## INTRODUCTION

Genetically modified (GM)[1] agricultural products have been on the market in Canada for more than 20 years. GM crops are now an integral part of the Canadian agricultural landscape and few in the agriculture and agri-food sector still question their adoption and the agronomic and economic benefits they have brought.

However, Health Canada's May 2016 approval of a GM salmon for sale as food has attracted attention on the use of genetic engineering in order to improve farm animals intended for human consumption. This was the first food in the world from a GM animal that could be put on the market. It was also approved by the Food and Drug Administration in the United States in November 2015 and is currently going through the assessment process in Argentina and Brazil.

In a letter received on 20 May 2016, the Minister of Agriculture and Agri-Food requested that the Standing Committee on Agriculture and Agri-Food ("the Committee") examine the legal and regulatory framework around GM animals and their increasing availability for human consumption. On 1 June 2016, the Committee passed the following motion:

> That the Committee study genetically modified animals for human consumption, including any changes which may be needed to adequately address the full range of potential issues around the approval of products involving genetically modified animals beyond health and safety, the challenges and opportunities this presents to Canada, and what steps should be taken to best inform the public about new products planned for introduction to the market; and that the Committee report its findings to the House no later than Thursday, December 8, 2016.[2]

The Committee held four public hearings in September and October 2016. It heard from representatives of the agriculture and agri-food sector, regulatory authorities and civil society about the issues raised by the arrival of GM animals for human consumption.

### A. Genetically modified animals: opportunities and challenges

#### 1. Genetic engineering: a tool for innovation

Genetically engineered or genetically modified (or transgenic) animals are those in which genetic material has been added, removed, neutralized or modified in order to allow

1 In the report, the term "genetically modified organisms" (GMO) will also be used.

2 House of Commons, Standing Committee on Agriculture and Agri-Food (AGRI), *Minutes*, 42nd Parliament, 1st session, 1 June 2016.

certain new characteristics to be expressed.[3] GM animals have been used in basic research for several decades, including as models for the study of disease. Other applications are at various stages of development, for example, in animal molecular farming (producing pharmaceutical or industrial products in biological liquids such as milk), in xenotransplantation (transplanting animal organs to humans) and in the fight against some insect-borne diseases (producing resistant mosquitos).

Genetic engineering can also be used to improve farm animals for human consumption, an area in which Canada was a pioneer. The development of transgenic salmon started in 1989 based on research conducted at Newfoundland's Memorial University to transfer resistance to freezing into salmon. This Atlantic salmon (*Salmo salar*), developed by AquaBounty Technologies Inc., was modified, with the insertion of a gene from the chinook salmon (*Oncorhynchus tshawytscha*) to accelerate its growth rate and thereby reach market size more quickly.[4] In 1999, the University of Guelph developed the first GM hog, which more readily digests the phosphorous in feed grain. The effect was to reduce feed costs and phosphorous pollution compare to conventional hogs. However, Ontario Pork, which represents the province's hog producers, withdrew its support in 2012, bringing the research program to an end.

Witnesses indicated that genetic engineering is a tool that can be used in addressing the challenges of growing global demand, of market evolution and of reducing the environmental footprint of food production. The GM salmon, for example, is one of several ways to increase the supply of animal protein. According to AquaBounty Technologies, because of genetic engineering, the growth rate of Atlantic salmon has doubled in two years. With classical genetic selection, this would have taken 24 years to achieve.[5]

BIOTECanada, which represents the biotechnology industry in Canada, stated that Canada has an excellent record in technological innovation.[6] Innovations represent potentially major economic benefits for the country.[7] For example, witnesses stressed the importance of science clusters in the development of innovation in Canada. They encourage collaboration and create a virtuous circle by attracting other companies that in turn bring more growth and innovation. As with AquaBounty's salmon, the departure path for an innovation is often changed, discoveries in progress take new directions and may expand into other companies and other innovations.

---

3 Canadian Food Inspection Agency, *Animal Biotechnology - Roles and Responsibilities of the Government of Canada*.

4 House of Commons, AGRI, *Evidence*, 42nd Parliament, 1st session, 4 October 2016, 1000 (Dave Conley, Director, Corporate Communications, AquaBounty Technologies, Inc.).

5 Ibid., 1040.

6 Ibid., 0955 (Andrew Casey, President and Chief Executive Officer, BIOTECanada).

7 Ibid., 1035.

## 2. The acceptance of genetically engineered products

Nevertheless, the challenges of genetic engineering for animal production are numerous. Witnesses explained that developing a GM animal takes a lot of time, particularly to satisfy regulatory requirements. The first discussions of the regulatory approval process for transgenic salmon took place in 1994 with the Food and Drug Administration in the United States[8] and the first data on the safety of the product was submitted in 2004.[9] The Canadian Cattlemen's Association (CCA) also told the Committee that beef from genetically modified cattle will not be available on grocery store shelves any time soon, because of the complexities in applying the technology to cattle.[10] The cattle industry prefers classical selection even though it might take more time. But the main curb on the development of GM animals for human consumption seems to be consumer acceptance.

Testimony showed that the market is still ambivalent to GM agricultural products. Although producers in North America have largely embraced GM crops because of the economic and agronomic benefits they bring (in Canada alone, improved crops have raised yields by 32% according to CropLife),[11] this is not the case in other countries, especially those of the European Union. The Committee heard from a number of groups expressing doubts about the benefits of genetic engineering in agriculture. For example, citing the increase in total sales of pesticide in Canada in the last 20 years, Vigilance OGM questions the statement that GM crops have reduced pesticide use.[12] The group also argues that GMOs have little or no impact in reducing hunger in the world because there are no GM food crops in countries of the south, and because most GM crops are used for animal feed or to make processed products.[13]

Witnesses indicated that there also has been no public consultation in Canada around the first GM animal for human consumption.[14] The Ecology Action Network (EAC) mentioned that Atlantic salmon is a very important species for many communities and the absence of consultation with the commercial and recreational fishing industry, the tourism industry and Indigenous people will have long term implications for these stakeholders.[15] The Canadian Biotechnology Action Network (CBAN) wants the government to impose a moratorium on the introduction of GM animals until Canadians have a chance to be heard

---

8 House of Commons, AGRI, *Evidence*, 42nd Parliament, 1st session, 18 October 2016, 1005 (Garth Fletcher, Memorial University of Newfoundland).

9 House of Commons, AGRI, *Evidence*, 42nd Parliament, 1st session, 4 October 2016, 1015 (Dave Conley,).

10 House of Commons, AGRI, *Evidence*, 42nd Parliament, 1st session, 27 September 2016, 0950 (Andrea Brocklebank, Executive Director, Beef Cattle Research Council, Canadian Cattlemen's Association).

11 House of Commons, AGRI, *Evidence*, 42nd Parliament, 1st session, 4 October 2016, 0855 (Dennis Prouse, Vice-President, Government Affairs, CropLife Canada).

12 House of Commons, AGRI, *Evidence*, 42nd Parliament, 1st session, 18 October 2016, 0845 (Thibault Rehn, Coordinator, Vigilance OGM).

13 Ibid.

14 Ibid., 0955 (Mark Butler, Policy Director, Ecology Action Centre).

15 Ibid., 1020.

on the acceptability of foods made from them, on the ethical aspects of producing GM animals, and on how they are used.[16] CBAN stated that Canadian regulation does not include risk-benefit analyses of new products and that a market's rejection of a product can have major economic consequences. The example given was the 2009 contamination of shipments of flax by a GM variety not approved in the European Union. This cost Canadian flax producers more than $29 million.[17]

On the other hand, all the witnesses representating the biotechnology industry and the agriculture and agri-food sector are of the view that the market should be left to decide on the products that will or will not be brought to market in response to the demand.[18] BIOTECanada indicated that investors will not invest in a product if there is no market for it,[19] and that it should not be the government's role to try to predict what will work in the marketplace.[20] As a representative of the Canadian Food Inspection Agency (CFIA) pointed out, the Canadian regulatory system focuses entirely on the safety and environmental protection of new products; it does not make value judgments on the reasons why the products were created.[21] In addition, for many years, Canada has stood by the position that access to international markets must be decided on the basis of scientific considerations.

The testimony showed that the market still seems reluctant to accept transgenic animals. For example, hog producers decided not to proceed with the commercialization of GM pork developed by the University of Guelph.[22] In addition, although AquaBounty salmon will not be produced in Canada, the Canadian Aquaculture Industry Alliance told the Committee that customers both inside and outside Canada are not really interested in purchasing any. Without being opposed to the approval of GM salmon, the Canadian aquaculture industry has indicated its intention to not use this technology.[23] AquaBounty Technologies still seems to think that its transgenic salmon will be accepted by the market[24] and intends to move forward with commercial production in its facilities in Panama.

---

16 House of Commons, AGRI, *Evidence*, 42nd Parliament, 1st session, 4 October 2016, 0855 (Lucy Sharratt, Coordinator, Canadian Biotechnology Action Network).

17 Ibid., 0850.

18 Ibid., 1035 (Andrew Casey).

19 Ibid., 1015.

20 Ibid., 1035.

21 House of Commons, AGRI, *Evidence*, 42nd Parliament, 1st session, 29 September 2016, 1030 (Paul Mayers, Vice-President, Policy and Programs Branch, Canadian Food Inspection Agency).

22 Ibid., 0920 (Andrea Johnston, Director General, Sector Development and Analysis Directorate, Market and Industry Services Branch, Department of Agriculture and Agri-Food).

23 House of Commons, AGRI, *Evidence*, 42nd Parliament, 1st session, 18 October 2016, 0845 (Ruth Salmon, Executive Director, Canadian Aquaculture Industry Alliance).

24 House of Commons, AGRI, *Evidence*, 42nd Parliament, 1st session, 4 October 2016, 1040 (Dave Conley).

### 3. The environmental consequences of the commercial production of genetically modified salmon.

There is a major difference in scale between the production of GM animals intended for research and those intended for human consumption. The commercial expansion of GM salmon production is a source of concern for the EAC. In particular, the EAC is fearful of the risks that the production of GM salmon may pose for wild populations of Atlantic salmon.[25]

According to the AquaBounty representative, all precautions have been taken to avoid negative environmental consequences and the contamination of wild stocks.[26] Right after fertilization, the eggs of GM salmon are subjected to a pressure shock treatment, which makes the fish sterile. This process works in 99.8% of cases and a new technology guaranteeing a 100% result is currently being developed. The production facilities are land-based and subject to biosecurity measures to prevent escapes. In addition, AquaBounty wants to locate its commercial production in Panama, a country with no native population of Atlantic salmon and where the waters form a natural biological barrier because their higher temperatures do not allow salmon to survive.[27]

According to the EAC representative, Fisheries and Ocean Canada's environmental assessment of the GM salmon indicates that it is possible for farmed salmon to reproduce in the wild.[28] One single GM salmon breeding with an Atlantic salmon would be enough for the trait to be introduced into the breeding stock. The proliferation of commercial facilities would automatically increase the possibilities of escape and, in the long term, even with a very high success rate for sterilization, there would be crosses with wild salmon. According to the EAC, research also shows that GM salmon could compete with wild Atlantic salmon for food and other resources. The EAC claims that the government should have evaluated the possibility of the new species of salmon becoming invasive. Together with another environmental group, it has launched a lawsuit against the Government of Canada for breaching the *Canadian Environmental Protection Act* when it allowed the production of GM Atlantic salmon eggs.[29]

The only assessments and approvals done in Canada are for the production of eggs for export and for the commercialization of salmon as food. However, if a company decided to become involved in the commercial production of GM salmon in Canada, Environment and Climate Change Canada (ECCC) would have to conduct an environmental assessment to serve as a basis for the approval or non-approval of the activity.[30]

---

25 House of Commons, AGRI, *Evidence*, 42nd Parliament, 1st session, 18 October 2016, 0955 (Mark Butler).

26 House of Commons, AGRI, *Evidence*, 42nd Parliament, 1st session, 4 October 2016, 1000 (Dave Conley).

27 Ibid., 1020.

28 House of Commons, AGRI, *Evidence*, 42nd Parliament, 1st session, *Brief submitted by the Ecology Action Centre*, 18 October 2016.

29 Ibid.

30 House of Commons, AGRI, *Evidence*, 42nd Parliament, 1st session, 29 September 2016, 1020 (Paul Mayers).

## B. An effective, predictable and transparent regulatory system

### 1. Overview of the regulatory framework for genetically modified animals

The *Canadian Environmental Protection Act 1999* (CEPA 1999) and the *Food and Drugs Act* (FDA) are the two legislative instruments that govern the commercialization of GM animals intended for human consumption.

Under the CEPA (1999) and the *New Substances Notification Regulations (Organisms)*, a person who intends to manufacture, import or sell a GM animal in Canada must notify ECCC. The Department then conducts an assessment to determine the possible effects the animal may have on the environment. Health Canada administers the aspects of the CEPA (1999) that affect human health, including the safety of those who work with the animals.

Under the *Food and Drugs Act* and its Regulations, Health Canada requires prior notification of the intention to sell or advertise for sale a "novel food" (Food and Drug Regulations, Part B, s. 28.002). This applies to genetically modified food products, but also to any products created by means other than genetic engineering. The prior notification enables Health Canada to conduct an assessment establishing that the novel foods are safe for human consumption, including animal products from GM animals.

Health Canada assesses the safety of products from GM animals pursuant to the *Guideline for the Conduct of Food Safety Assessment of Foods Derived from Recombinant-DNA Animals* published by the Codex Alimentarius.

### 2. Opinions on the Regulatory System

According to CropLife, the success of plant biotechnology in Canada has been made possible because of a transparent, predictable and science-based regulatory system.[31] That view is shared by BIOTECanada, which stated that the regulatory system works well and that Canada is among the world leaders in regulating innovation. According to the industry, it is a major competitive asset in global markets.

Nevertheless, the biotechnology sector is of the opinion that the regulatory system should be re-examined regularly, given the speed of innovation. The sector stresses the need to increase the resources in the departments responsible for regulation so that their scientific staff is current with the technology, and with the need to develop an evaluation process according to a scale of risks that would allow resources to be assigned according to those risks.[32] It is also up to the government to ensure that universities are adequately funded because they provide most of the scientists in those departments, including those who will become regulators in the future.[33]

---

31 House of Commons, AGRI, *Evidence*, 42nd Parliament, 1st session, 4 October 2016, 0855 (Dennis Prouse).

32 Ibid., 0900.

33 Ibid., 1030 (Andrew Casey).

Health Canada and the CFIA assured the committee that GMOs currently on the market are safe both for human and animal health and for the environment. Regulators not only examine the data provided by the industry according to the protocols of international standards, they also consider the current scientific literature. Regulatory authorities testified that there is no evidence of harmful effects after almost 20 years of GMO use for animal feed and for human consumption.[34]

However, CBAN and Vigilance OGM stated that there has never been a long-term study to show that GMOs are harmless[35] and would like the data required for the approval of GM foods to be made public. They feel that there is a lack of transparency of the regulatory system and maintain that this undermines public trust in these new products.

Witnesses indicated that most consumers accept considered scientific opinions[36] and that improving the transparency of the regulatory system would bolster public trust and provide better acceptance of approved products. Among the suggested solutions, witnesses proposed an increase in independent research funding on the effects of GM agricultural products on health and on the environment or that Health Canada be able to conduct its own studies.[37] It was also proposed that a notice be published when an application to approve a GM animal is submitted. This is already the case for GM crops through a voluntary agreement between CropLife and the CFIA that allows the agency to post a notice of products under review if the companies are in agreement.[38]

**Recommendation 1**

**The Committee recommends that the government provide greater transparency in the regulatory system that evaluates genetically modified animals intended for human consumption.**

**Recommendation 2**

**The Committee recommends that the government provide support for independent research into the health, environmental and other effects of new genetic modification technologies (including those to produce genetically modified animals).**

### C. Labelling of genetically modified foods

Although some countries, including those of the European Union, have adopted mandatory labelling policies for GM foods, food labelling in Canada is mandatory only when a risk to health has been established or there is a change in nutritional quality, for

34 House of Commons, AGRI, *Evidence*, 42nd Parliament, 1st session, 29 September 2016, 0940 (Karen McIntyre, Director General, Food Directorate, Health Products and Food Branch, Department of Health).

35 House of Commons, AGRI, *Evidence*, 42nd Parliament, 1st session, 18 October 2016, 0925 (Thibault Rehn).

36 House of Commons, AGRI, *Evidence*, 42nd Parliament, 1st session, 27 September 2016, 0955 (Andrea Brocklebank).

37 House of Commons, AGRI, *Evidence*, 42nd Parliament, 1st session, 18 October 2016, 0915 (Thibault Rehn).

38 House of Commons, AGRI, *Evidence*, 42nd Parliament, 1st session, 4 October 2016, 0855 (Lucy Sharratt).

example if an allergen is present in the food. Given that no risks to health have been identified for GM foods approved in Canada, there are no particular labelling requirements. However, voluntary labelling of the genetically modified content of a food is allowed. Companies must comply with the standard entitled *Voluntary labelling and advertising of foods that are and are not products of genetic engineering* adopted by the Canadian General Standards Board in 2004.

Citing surveys, however, witnesses indicated that mandatory labelling of genetically modified foods is widely supported by the public and would likely improve public trust in the regulatory system. Vigilance OGM also showed that, in places where mandatory labelling has been implemented, specifically in Vermont, there have been no additional costs for the industry or consumers.[39] Agri-food companies regularly change their packaging in order to respond to consumer tastes without increasing their prices.

The CFIA indicated that consumer confidence is a complex issue, and that labelling is an example where there are differences between poll outputs and consumer behaviour in the marketplace.[40] Using the regulatory decisions as a basis, the industry stresses that there is no basic difference in nutritional value between GM animals and their conventional counterparts. The CCA also mentioned studies showing that the consumption of GM feed by farm animals does not change the food (meat, milk, etc.) that the animals produce.[41] Therefore, if they pose no health problems, there would be no need to label them differently from their conventional counterparts. Some are of the view that making labelling mandatory for GM foods could give the impression that there are health and safety risks.[42]

It is always possible for companies to differentiate their products by labelling them "GMO free", but it is important to be able to back up any claim about the GM content of a food. In the United States, Congress passed legislation in 2016 requiring companies to indicate the presence of GM ingredients through their company's website, telephone information or QR code. CropLife stated that this kind of smart labelling establishes a link with traceability and that, given the integration of the North American market, Canadian companies will perhaps have to adopt the practices in force in the United States.[43] Ensuring the traceability of GMOs in the food system would provide consumers with information and would support the claims about the GM content of a food.

**Recommendation 3**

**The Committee recommends that the government support the mandatory labelling system only for issues of food health and safety.**

---

39 Ibid., 0910.

40 House of Commons, AGRI, *Evidence*, 42nd Parliament, 1st session, 29 September 2016, 1005 (Paul Mayers).

41 House of Commons, AGRI, *Evidence*, 42nd Parliament, 1st session, 27 September 2016, 1010 (Andrea Brocklebank).

42 House of Commons, AGRI, *Evidence*, 42nd Parliament, 1st session, 4 October 2016, 0920 (Dennis Prouse).

43 Ibid.

**Recommendation 4**

**The Committee recommends that the government work with industry to establish tools to provide traceability for genetically modified animals.**

# LIST OF RECOMMENDATIONS

# APPENDIX A
# LIST OF WITNESSES

| Organizations and Individuals | Date | Meeting |
|---|---|---|
| **Canadian Cattlemen's Association** | 2016/09/27 | 20 |
| Andrea Brocklebank, Executive Director | | |
| Brian Thiessen, Director<br>Chair, Beef Cattle Research Council | | |
| **Canadian Food Inspection Agency** | 2016/09/29 | 21 |
| Paul Mayers, Vice President<br>Policy and Programs Branch | | |
| **Department of Agriculture and Agri-Food** | | |
| Andrea Johnston, Director General<br>Sector Development and Analysis Directorate, Market and Industry Services Branch | | |
| **Department of Health** | | |
| Karen McIntyre, Director General<br>Food Directorate, Health Products and Food Branch | | |
| **AquaBounty Technologies, Inc.** | 2016/10/04 | 22 |
| Dave Conley, Director<br>Corporate Communications | | |
| **BIOTECanada** | | |
| Andrew Casey, President and Chief Executive Officer | | |
| **Canadian Biotechnology Action Network** | | |
| Lucy Sharratt, Coordinator | | |
| **CropLife Canada** | | |
| Dennis Prouse, Vice-President<br>Government Affairs | | |
| **Canadian Aquaculture Industry Alliance** | 2016/10/18 | 24 |
| Ruth Salmon, Executive Director | | |
| **Ecology Action Centre** | | |
| Mark Butler, Policy Director | | |
| **Memorial University of Newfoundland** | | |
| Garth Fletcher | | |
| **Vigilance OGM** | | |
| Thibault Rehn, Coordinator | | |

# APPENDIX B
# LIST OF BRIEFS

## Organizations and Individuals

Canadian Biotechnology Action Network

Ecology Action Centre

Memorial University of Newfoundland

Croplife Canada

# REQUEST FOR GOVERNMENT RESPONSE

Pursuant to Standing Order 109, the Committee requests that the government table a comprehensive response to this Report.

A copy of the relevant *Minutes of Proceedings* Meetings Nos. 20, 21, 22, 24, 27, 34, 35 and 36 is tabled.

Respectfully submitted,

Pat Finnigan
Chair

## SUPPLEMENTARY REPORT OF THE NEW DEMOCRATIC PARTY – STUDY ON GENETICALLY MODIFIED ANIMALS FOR HUMAN CONSUMPTION

The New Democratic Party would like to thank all of the witnesses who took the time to share their views on genetically modified animals for human consumption. We are convinced that this exercise was beneficial and informative for all the political parties. The consensus on almost all the recommendations reflects the willingness of all parties to produce a constructive and useful report for decision-makers.

Nonetheless, the NDP considers that the report—especially paragraph 25 and Committee recommendations 1 and 3—does not fully reflect the testimony given.

With respect to paragraph 25, if the Committee had wanted to accurately reflect the testimony of certain witnesses, including Vigilance OGM, it should have elaborated on why witnesses consider that the regulatory approval system lacks transparency. In its testimony, Vigilance OGM made particular mention of a Health Canada official's testimony to the Committee that all the studies Health Canada had taken into account in its acceptance of genetically modified salmon were available on the department's website.[1] Vigilance OGM checked the website and found no studies there; in fact, it was not even possible to get these reports by means of an access to information request. Vigilance OGM also pointed out that most of the data used by Health Canada to approve genetically modified salmon came from the industry.[2]

This clarification of paragraph 25 is closely linked to the changes that the NDP would like to propose for Recommendation 1. Based on the testimony it heard, the Committee should have recommended that the Government consider the possibility of giving the public access to the studies and data used to approve new products containing genetically modified organisms.

In our opinion, Recommendation 3 regarding the labelling of genetically modified foods does not reflect the testimony heard by the Committee.

Several witnesses representing a large number of Canadian consumers recommended that the government require mandatory labeling of genetically modified foods.[3] Another witness said that she would support the government's decision if it went ahead, [4] while another said, while he was not opposed to the mandatory labeling of GMOs, he was concerned that it creates a perception

---

[1] House of Commons, AGRI, *Evidence*, 1st Session, 42nd Parliament, 18 October 2016, 0925 (Mr. Thibault Rehn, Coordinator, Vigilance OGM).
[2] *Ibid*, 0925.
[3] *Ibid,* 0925; House of Commons, AGRI, *Evidence*, 1st Session, 42nd Parliament, 4 October 2016, (Ms. Lucy Sharratt, Coordinator, Canadian Biotechnology Action Network); House of Commons, AGRI, *Evidence*, 1st Session, 42nd Parliament, 18 October 2016, (Mr. Mark Butler, Policy Direction, Ecology Action Centre).
[4] House of Commons, AGRI, *Evidence*, 1st Session, 42nd Parliament, 18 October 2016, 0845 (Ms. Ruth Salmon, Executive Director, Canadian Aquaculture Industry Alliance).

among consumers that GMOs are harmful to human health.[5] This perception could be countered by means of government awareness and education campaigns on GMOs. Furthermore, two industry witnesses said they were opposed to the mandatory labeling of GMOs[6] and two others gave no opinion on the subject. Therefore, the evidence was far from unanimous and consensual on maintaining the current GMO labeling system, as recommended by the Committee.

It is important to bear in mind that the mandatory labeling of GMOs exists in 64 countries including Australia, New Zealand, the European Union and the U.S. state of Vermont.[7] A recent study published by Health Canada concluded that nearly 80% of Canadians want to see mandatory labelling of GMOs, and that they did not consider voluntary labelling credible.[8] The NDP believes that, to accurately reflect the evidence, the Committee should have suggested that the government collaborate with Canadian stakeholders and consumers to establish a GMO labeling plan. The Committee's current recommendation totally ignores the recommendations of three witnesses representing many Canadians.

[5] House of Commons, AGRI, *Evidence*, 1st Session, 42nd Parliament, 4 October 2016, 0855 (Mr. Dennis Prouse, Vice-President, Government Affairs, CropLife Canada).
[6] House of Commons, AGRI, *Evidence*, 1st Session, 42nd Parliament, 4 October 2016, 1040 (Mr. Dave Conley, Director, Corporate Communications, AquaBounty Technologies, Inc.); House of Commons, AGRI, *Evidence*, 1st Session, 42nd Parliament, 4 October 2016, 1030 (Mr. Andrew Casey, President and Chief Executive Officer, BIOTECanada).
[7] Center for food safety, *Genetically Engineered Food Labeling Laws,* [online], http://www.centerforfoodsafety.org/ge-map/, 2016.
[8] The strategic Counsel, *Consumer Views of Genetically Modified Foods,* [online], http://epe.lac-bac.gc.ca/003/008/099/003008-disclaimer.html?orig=/100/200/301/pwgsc-tpsgc/por-ef/health/2016/042-15-e/summary.pdf, 2016.