Submission

Submission on the proposed Auckland Unitary Plan Hearings – Topic 024 GMOs

25 August 2015

Brendon Strydom
Auckland Unitary Plan Independent Hearings Panel
Private Bag 92300
Victoria Street West
Auckland 1142

Dear Brendon,

Please accept the following letter and attachments as the McGuinness Institute's submission on the proposed Auckland Unitary Plan Hearings – Topic 024 GMOs. This is an update of our previous submission dated 28 February 2014. Our submitters number is 9222.

Kind regards,

Hannah Steiner
Project Manager
McGuinness Institute

Attached:

- *The History of Genetic Modification in New Zealand* (April 2008)
- *The Review of the Forty-nine Recommendations of the Royal Commission on Genetic Modification* (April 2008)
- *Report 16: Full Report – An Overview of Genetic Modification in New Zealand 1973-2013: The first forty years* (September 2013)
- *Report 16: Appendices – An Overview of Genetic Modification in New Zealand 1973-2013: The first forty years* (September 2013)

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About the McGuinness Institute

The McGuinness Institute (formerly the Sustainable Future Institute) was founded in 2004. The Institute is a non-partisan think tank working towards a sustainable future, contributing strategic foresight through evidence-based research and policy analysis. *Project 2058* is the Institute's flagship project which includes a research programme that aims to explore New Zealand's long-term future. In preparing this submission we drew largely on the Institute's overarching flagship project – *Project 2058*, – and in particular our work on *Project Genetic Modification*. The following is a list of research publications produced for *Project Genetic Modification*:

- September 2013: *Report 16: Full Report – An Overview of Genetic Modification in New Zealand 1973-2013: The first forty years*
- September 2013: *Report 16: Appendices – An Overview of Genetic Modification in New Zealand 1973-2013: The first forty years*
- July 2010: *In Focus: Genetically Modified Forages – an update on the current status of genetically modified forages in New Zealand*
- May 2010: *In Focus: Transgenic Livestock Programme – an update on the current status of AgResearch's transgenic livestock programme*
- October 2008: *Think Piece 6: An opinion piece on the strategic direction of Genetic Modification in New Zealand, timed to provide additional information on applications by AgResearch*
- April 2008: *The Review of the Forty-nine Recommendations of the Royal Commission on Genetic Modification*
- April 2008: *The History of Genetic Modification in New Zealand*

About the Chief Executive

Wendy McGuinness wrote the report *Implementation of Accrual Accounting in Government Departments* for the Treasury in 1988. She founded McGuinness & Associates, a consultancy firm providing services to the public sector during the transition from cash to accrual accounting. From 2003–2004 she was Chair of the NZICA Sustainable Development Reporting Committee and became a fellow chartered accountant (FCA) in 2009. In 2004 she established the Institute in order to contribute to a more integrated discussion on New Zealand's long-term future.

Introduction

In September 2013 the McGuinness Institute published *Report 16: An Overview of Genetic Modification in New Zealand 1973-2013: The first forty years*, which was an update of two reports released in 2008 – *The History of Genetic Modification in New Zealand* and *The Review of the Forty-nine Recommendations of the Royal Commission on Genetic Modification.* The Institute felt it was timely to produce an updated report to contribute to and encourage broader narrative around the genetic modification debate in New Zealand, and to reflect on 40 years of policy in this area.

The 2013 report found that New Zealand is no further ahead strategically on public policy regarding outdoor Genetically Modified Organisms (GMOs) than it was when the Commissioners of the Royal Commission on Genetic Modification reported their findings alongside their 49 recommendations in 2001 (MI, 2013a: 3).

It is the belief of the Institute that the current regulatory framework in New Zealand is not fit for the testing and possible release of genetically modified organisms. To illustrate this *Review of the Forty-nine Recommendations of the Royal Commission on Genetic Modification* found that only 20 of the 49 recommendations were fully implemented and 17 of the recommendations were not implemented at all (SFI, 2008: 3).

It is also our view that Crown research institutes (CRIs) do not necessarily have an understanding of commercial realities. In 2013 we found that of the 57 outdoor experiments undertaken since New Zealand's first GM outdoor experiment in 1988, 70 per cent have been undertaken by government-funded institutions (MI, 2013a: 69). To date, these experiments have required significant public investment but have yielded no known commercial benefits for New Zealand. The benefits promised over the years have not materialised and subsequently it makes economic and environmental sense for New Zealand to position itself as a GM-free food and fibre producer, particularly as significant consumer resistance to GM food persists globally. For examples see pages 89-92 in our 2013 report. A further example of this resistance is in the USA where 18 states have recently introduced bills that require all GM foods to be labelled as such now that they are becoming increasingly available on American store shelves (Sifferlin, 2015).

In the European Union a cautionary approach is taken towards GMOs and currently there is only one GMO commercially cultivated in the EU – GM maize (MON 810) (European Commission, 2015). In The Law Library of Congress' 2014 report *Restrictions on Genetically Modified Organisms,* which summarises the restrictions on GMOs in a number of countries including New Zealand, the author notes:

> Since 2001, the EU has placed a de facto moratorium on approvals of GMOs. An official list of authorized GM plants is available at the EU public register of GM food and feed. The United States, Canada, and Argentina have in the past challenged before the World Trade Organization (WTO) the moratorium itself; the lack of action with respect to certain products; and the practice by EU Members of resorting to a safeguard clause, which allows them to restrict or ban the cultivation of GMOs in their territories. In 2006, the EC-Biotech Panel of the WTO found against the EU for violating the Sanitary and Phytosanitary Agreement. Following the September 2013 decision of the General Court, which held that the Commission failed to act on a GM cultivation request for maize 1507, the Commission complied with the Court's ruling in November 2013 by forwarding a proposal for approval of maize 1507 to the Council. The application for cultivation for maize 1507 was submitted initially in 2001 by Pioneer Hi-Bred International, Inc. under Directive 2001/18/EC on the Deliberate Release of GMOs into the

> Environment. Maize 1507 is currently approved in the EU only for food and feed uses. A number of EU Members, such as France, Austria, and Poland are expected to oppose the proposal, while Britain, Spain, and Sweden are expected to vote in favor.
>
> GMO cultivation in the EU is limited because of concerns expressed by stakeholders about adverse effects on the environment, farmlands, and biodiversity. Under the current legal regime, EU Members may restrict or totally ban cultivation in their territories of those GMOs already authorized in the EU by resorting to the safeguard clause of Directive 2001/18/EC, or by using the notification procedures under the rules on internal markets. (The Law Library of Congress, 2014: 66)

For more details on the EU stance see Appendix for the European Commission's *Fact Sheet: Questions and Answers on EU's policies on GMOs*. In addition to this cautionary approach, the EU has made decisions in a considered manner that takes into account the demands from consumers. We believe that the Auckland Council and New Zealand at large should take a similar stance with regard to GMOs. Our 2013 report provided 12 recommendations for a way forward, one of which was to allow local authorities to regulate GMOs themselves (Recommendation 6 below). The Institute is of the opinion that we must proceed with caution and continue to carefully weigh up the benefits, costs and risks if we are to continue to be seen as a premium global food producer. It is hoped that these recommendations and the attached reports are taken into consideration during the hearings on the proposed Auckland Unitary Plan – Topic 024 GMOs. The 12 recommendations from this report have been copied below:

Recommendation 1: Investment programmes should be evaluated as a matter of good practice

Investment programmes developed by the government (including CRIs) that are particularly risky, contentious, involve joint ventures and/or represent a significant investment of public funds, must be regularly assessed. The Institute would like to see significant improvements in procedural transparency. Integrated reports must be published regularly, identifying the aim of the project, primary goals, key stakeholders (including relationships such as joint ventures/partnerships), recognised and perceived benefits (in particular, clarity over who owns the benefits of the investment programme), costs (in particular, the size of the public's investment) and a full assessment of all known and potential risks (including investment, financial, legal liability and environmental risks). Any review of the HSNO

legislation should consider whether the current arrangement allows a true analysis of benefits (see also the discussion in Section 7.2.12 on pages 92 and 93 of our 2013 report). If government is going to continue to invest significant amounts of money in a framework for CRIs to undertake outdoor GM experiments, it must provide assurance that the benefits are adequately scrutinised in terms of the benefits that will accrue to New Zealand, that costs are borne by the applicant (not the public) and that risks are well-managed. Further, we believe a register of all government funds, including grants and capital, should be made transparent to the public to ensure companies are not double dipping and to ensure the focus remains on the public's return from investment. (MI, 2013a: 72-73)

Recommendation 2: Risk management requires a whole-of-government approach

This might take the form of an integrated standard developed by the SSC, to be applied across the entire public sector that aims to emphasise transparency and build linkages between regulatory institutions and departmental science advisors. There is currently a risk that science advisors are seen as risk management experts. Risk management is far more than identifying and weighing scientific risk; it is critical that an integrated and transparent approach to decision-making must drive public policy. (MI, 2013a: 75)

Recommendation 3: Compliance costs should be fully recovered from applicants

There should be a reassessment of the EPA's pricing principles, placing the responsibility for the full costs of processing an application on the applicant. Further, applications that are viewed as beneficial to New Zealand should be able to apply for funding by a government institution that has the mandate to make such a judgement – such as MBIE – rather than the EPA, separating the government investment decisions from the EPA approved decisions. In addition, more effective reporting in this area is likely to create better decisions regarding application fees and strategic options. (MI, 2013a: 76)

Recommendation 4: Legal liability should be reviewed as coexistence with zero contamination is not possible and definitions of new organisms have become increasingly unclear

Given the concerns of stakeholders in New Zealand and the limitations of coexistence, New Zealand should undertake a full review of current legal liability, with particular focus on the potential for incorporation of financial fitness, ensuring companies undertaking GMO releases are capable of paying the costs resulting from any contamination. Since a GMO release would inevitability deliver contamination of some level to both traditional and, in particular, organic food producers (a point that the science was unclear on during the Royal Commission hearings), it is timely to consider firstly whether GMOs should ever be released into the outdoors in New Zealand, and secondly whether the liability system in New Zealand is able to deal with contamination from emerging technologies. (MI, 2013a: 80)

Recommendation 5: Data management requires urgent attention

A review must be undertaken of the way information relating to GMO experiments is handled to ensure continuity across the GMO governance system so that data is timely, comprehensive and useful. We have provided seven examples of where the system is not working effectively, but we suspect there would be many further opportunities to improve the process and develop a system that draws all key institutional parties together. We suspect this review would best be led by MfE, with assistance from the EPA, MBIE and MPI (see Figure 2 on page 66 of our 2013 report). (MI, 2013a: 82)

Recommendation 6: Allow local authorities to regulate GMOs or amend the HSNO framework accordingly

The government should not prevent local bodies from using the RMA to regulate GMOs. If it does so, it indicates a bias toward GM producers at the expense of non-GMO food producers; communities should have both the right and the responsibility to make decisions over land use. Further, the fact that some of these authorities deem a plan change to be necessary indicates that the current approach should be revisited; policy analysts should not be focusing on trying to entrench past ideologies but look at why regions might wish to brand themselves as GM-free food producers – what are the benefits that are driving their behaviour, and might this be a useful perspective for the country to consider?

One option would be to amend the HSNO regulatory framework to prohibit field tests and outdoor developments of GMOs, with defined exemptions. This would mean that applications under HSNO would be considered on the assumption that the application will be declined unless the applicant can prove that the benefits will justify the exemption.

In practice, prohibiting only GM outdoor experiments and field tests and outdoor developments, rather than an outright ban on GM research would add a crucial extra step in the approval process. It would also serve as an opportunity for both local and central government to clarify exactly what they believe to be the purpose of allowing GMO outdoor developments and field tests in a considered and transparent

manner. This would not be a fundamental change, but a change that more closely aligns with the Royal Commission's recommendation that the government take a precautionary approach to genetic modification while preserving optionality. (MI, 2013a: 84-85)

Recommendation 7: Before the conditional release of any GMO, a field test should first be undertaken

A field test enables a much higher level of scientific rigour and due diligence to be applied both within and on the border of the contained area, rather than the more ad hoc approach advocated under the 2008 segregation and tracing regulations that relate only to conditional release. This is an important consideration as New Zealand has (i) little experience with field tests of GM crops (other than Scion's trees) and (ii) we do not have a large number of independent scientists to undertake peer review of controls and assess long-term impacts. Hence New Zealand is not well placed to undertake the necessary assessment and measurement of the effects of GM crops, in particular grasses, as we have no expertise in this area (see discussion on GM ryegrass in Section 6.1.1 on page 52 of our 2013 report). (MI, 2013a: 86)

Recommendation 8: Reviews should be tactical and regular

Tactical reviews are critical to the underlying operation of a system and must be undertaken on an ad hoc basis. In this system, the most urgent is a review of controls on outdoor experiments and any breaches of those controls – a breach of a control could mean that there is nothing between an experimental GMO and the natural environment. These reviews should be undertaken by a group of scientific experts.

Secondly, regular assessments of those monitoring and reporting on the controls must also be undertaken. Do those undertaking assurance understand the controls, and are they completing reviews to the standard the public expect? We have seen no evidence that these reviews are happening, and in view of the number of outdoor breaches that have occurred we suggest more work is needed to provide a high level of assurance to policy analysts and the public alike. Regular assessments should be undertaken to ensure the system works effectively, particularly considering the level of institutional change that has occurred in recent years (see Figure 2 on page 66 of our 2013 report) and concerns over the reporting of data and information noted in Section 7.2.5 on pages 80-82 of our 2013 report. (MI, 2013a: 87)

Recommendation 9: Memoranda of Understanding should be urgently reviewed and updated

Nineteen Memoranda of Understanding (MOUs) exist between the EPA and third parties, the oldest dating from 1998. Of these 19 types of MOUs, nine are more than five years old (see Appendix 16 of our 2013 report for more detail). All MOUs should be reassessed to ensure they have been actioned appropriately and stand as complete, accurate and relevant records of the understanding between the two parties. We recommend that all MOUs regarding the operation of the regulatory system between significant parties also be re-signed as of 2013, and are easily accessible on the EPA website.
(MI, 2013a: 87)

Recommendation 10: Strategy should be revisited

The Institute considers all four levels of strategy should be revisited. Although we would like to see a national strategy, we also support seeing the biotechnology strategy, GM strategy and outdoor GMOs strategy being revisited and published. This last point, relating to outdoor GMOs, is discussed further in Section 7.3, 'Reflections' on pages 93-97 of our 2013 report. Reassessing the 2003 New Zealand Biotechnology Strategy might prove insightful, possibly with a view to preparing a strategy with an action plan for 2013–2023. (MI, 2013a: 89)

Recommendation 11: A high-level foresight unit should be established

A foresight unit should be established to identify new and emerging issues on the horizon before they become significant and difficult to manage. Importantly, the foresight unit should operate separately from the management function of these new and emerging issues. This will ensure that the foresight team remain open to new opportunities and the policy team does not fall into the common trap of seeking out information to support a particular hypothesis or ideology. The Institute, in collaboration with others (see footnote 56 on page 89 of our 2013 report) is in the process of preparing a discussion paper on where this foresight unit might best fit within central government. (MI, 2013a: 92)

Recommendation 12: Decouple hazardous substances from new organisms, creating separate legislation for both

New Zealand needs to make strategic decisions around GM technology, developing strategy based on calculated risks, optionality and strategic foresight. We consider the regulation of new organisms alongside hazardous substances to be increasingly challenging, and that they would be better decoupled.

Further, we consider the assessment of benefits in the HSNO legislation problematic, as only a narrow view of benefits is required by the HSNO legislation; the benefit of the application is only considered in terms of what the experiment will produce once it has been completed (in contrast to the risks that exist beyond the length of the application). This has led to previous ERMA decisions noting that significant scientific knowledge will be created without any classification of the probability or magnitude of those benefits in terms of the public good; nor any clarity over who will gain those benefits as distinct of those that will bear the risks. See discussion in Section 7.2.1 on pages 68-73 of our 2013 report. (MI, 2013a: 93)

References

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Appendix: European Commission Fact Sheet: Questions and Answers on EU's policies on GMOs

Source: European Commission, 2015

Fact Sheet: Questions and Answers on EU's policies on GMOs

Brussels, 22 April 2015

What are GMOs?
Food and feed generally originate from plants and animals grown and bred by humans for several thousands of years. Over time, those plants and animals with the most desirable traits were chosen for breeding the next generations of food and feed. This was, for example, the case for plants with an increased resistance to environmental pressures such as diseases, or with an increased yield.

These desirable traits appeared through naturally occurring variations in the genetic make-up of those plants and animals. In recent times, it has become possible to modify the genetic make-up of living cells and organisms using techniques of modern biotechnology called gene technology. The genetic material is modified artificially to give it a new property (e.g. a plant's resistance to a disease, insect or drought, a plant's tolerance to an herbicide, improving a food's quality or nutritional value, increased crop productivity).

Such organisms are called "genetically modified organisms" (GMOs). Food and feed which contain or consist of such GMOs, or are produced from GMOs, are called "genetically modified (GM) food or feed".

What is the EU approach on GMOs?
The approach chosen in the EU as regards GMOs is a **precautionary approach imposing a pre-market authorisation for any GMO to be placed on the market and a post-market environmental monitoring for any authorised GMO**. This approach ensures a high level of protection of human and animal health and the environment.

The GMO legislation lays down specific procedures for assessing and authorising GMOs that are time-limited and transparent. The risk assessment is performed on the basis of harmonised criteria which are recognised as being amongst the most stringent in the world.

The European Food Safety Authority (EFSA), in collaboration with Member States' scientific bodies, is responsible for the risk assessment which needs to demonstrate that, under its intended conditions of use, the product is safe for human and animal health and the environment.

Once finalised, the risk assessment is the basis upon which the Commission proposes a decision to Member States accepting or rejecting the authorisation for the placing on the market of a GMO. Both the Commission and Member States are therefore involved in the authorisation of these GMOs.

The legislation also imposes a post-market monitoring of the environment for each authorised GMO allowing the Commission and Member States to take appropriate measures in case a non-anticipated adverse effect is identified.

Finally, in order to provide consumers with information and freedom of choice, traceability and labelling obligations are imposed for any authorised GMO.

What is the procedure for authorising the placing on the market of GMOs?
Regulation (EC) No 1829/2003 on genetically modified food and feed lays down a procedure for issuing decisions granting or rejecting authorisations for the placing on the market of genetically modified food and feed as well as for cultivation for the production of food and feed.

Applications are submitted first to the competent authority of a Member State. The application must clearly define the scope of the application, contain studies and data demonstrating the safety of the product, indicate which parts are confidential and must include a monitoring plan, a labelling proposal and a detection method.

The application and any supplementary information supplied by the applicant must be made available to EFSA, which is responsible for the scientific risk assessment covering risk to both the environment and human and animal health. The risk assessment is performed in close collaboration with Member States' scientific bodies. The opinion is made available to the public and a public consultation is open for a period of one month.

Within three months of receiving the opinion of EFSA, the Commission prepares a draft implementing decision granting or refusing authorisation. The Commission may diverge from EFSA's opinion, but it must then justify its position.

The Commission's draft decision submitted to Member States is voted on under qualified majority rules. In case the Standing Committee and the Appeal Committee do not manage to adopt the decision by qualified majority within a given time frame, it is up to the Commission to adopt the final decision.

How is GM food and feed risk assessed?
A company interested in placing a new GM food and feed on the EU market has to submit a file demonstrating the safety for human and animal health and the environment of the product in question.

Studies to be performed in order to demonstrate the safety of the GM food and feed to be placed on the market have to comply with Regulation (EC) 503/2013 on applications for authorisation of GM food and feed. This Regulation provides the requirements to be fulfilled when submitting a GM food and feed application including the studies to be performed and the protocol to be followed in conducting these studies.

Once received, the file is assessed by the European Food Safety authority (EFSA) in collaboration with Member States' scientific bodies. EFSA has the possibility to request additional studies/data from the company if it is not satisfied with the submitted ones. The risk assessment is finalised by the publication by EFSA of an opinion concluding on the safety of the GM food and feed. A one month public consultation is then launched in order to give the public the opportunity to comment on the EFSA opinion before any risk management decision is taken.

Are all EU-authorised GMOs safe for health and the environment?
All EU-authorised GMOs have been proved to be safe before their placing on the EU market. This has been concluded by the European Food Safety authority (EFSA) in collaboration with Member States for each individual GMO present on the market.

Annual reports of the environmental monitoring conducted for all authorised GMOs have not identified any adverse effects to the environment.

Finally, EFSA is monitoring all new scientific publications which could have an impact on the safety of the authorised GMOs and until now, none of them have changed the conclusions of the adopted EFSA opinions.

What are the changes that came into force recently on authorising the cultivation of GMOs?
The newly adopted Directive (EU) 2015/412 gives Member States more flexibility to decide on the cultivation of genetically modified crops, under certain conditions, at two distinct points in time:

- during the authorization procedure: a Member State can ask to **amend the geographical scope of the application** to ensure that its territory will not be covered by the EU authorisation;
- after a GMO has been authorized: a Member State may **prohibit or restrict the cultivation of the crop based on grounds** related amongst others to environmental or agricultural policy objectives, or other compelling grounds such as town and country-planning, land use, socio-economic impacts, co-existence and public policy.

Before the adoption of this Directive, Member States could provisionally prohibit or restrict the use of a GMO on their territory only if they had new evidence that the organism concerned constitutes a risk to human health or the environment or in the case of an emergency. No Member State which had adopted a so-called "safeguard clause" had ever been in a position to put forward new evidence.

Are any GMOs already cultivated in the EU?
Yes. **One GM maize –MON 810– is commercially cultivated in the EU**. This product's genetic modification aims to protect the crop against a harmful pest – the European corn borer. It was authorised in 1998.

MON 810 is cultivated in 5 Member States with a total coverage (in 2013) of almost 150,000 hectares (including 137,000 hectares in Spain). That's less than 1.5% of the total EU maize surface. GMOs were cultivated on 175 million hectares worldwide in 2013 (mostly soya, maize, oilseed rape and cotton). For the record: in 2010, a **GM starch potato**, known as "Amflora" potato, was authorised for cultivation and industrial processing in the EU. It is no longer authorised in the EU.

There are 8 pending applications for GMO cultivation in the EU, including renewal of MON810 authorisation. 4 have had a positive EFSA opinion; 4 are awaiting an EFSA opinion.

What are the GMOs that are authorised in the EU for feed and food uses?
Besides cultivation, the placing on the EU market of GMOs and the use of their derived products in the food and feed chain is subject to an EU authorisation, conditional upon the demonstration of an absence of risk for human and animal health and for the environment, following a thorough assessment by the European Food Safety Authority in collaboration with Member States' scientific bodies.

As of today, **58 GMOs are authorised in the EU for food and feed uses (covering maize, cotton, soybean, oilseed rape, sugar beet)**. 58 application files are pending, out of which 17 have a positive EFSA opinion and 1 has an inconclusive opinion. The list of authorised GM plants and the precise scope of their authorisation is available in the EU register of GM food and feed, which can be found here: http://ec.europa.eu/food/dyna/gm_register/index_en.cfm

Is there much GM food and feed on the EU market?
The EU imports substantial quantities of GM feed, but very little GM food.

Data shows that the Union needs more than 36 million tonnes of equivalent soybean per year to feed its livestock. However, the Union produces only 1.4 million tonnes of soybean annually (which is *de facto* non-GM as no GM soya is authorised for cultivation in the EU).

The Union livestock sector is therefore highly dependent on third countries' production for its vegetable proteins. **In 2013, the Union imported 18.5 million tonnes of soymeal and 13.5 million tonnes of soybean, representing more than 60% of the Union plant protein needs**.

These imports mainly originate from third countries where the cultivation of GMOs is widespread - 90% originate from 4 third countries where the percentage of the soybean-cultivated area planted with GM soybean is around 90%. In 2013, 43.8% originated from Brazil, where 89% of soybean cultivation was GM – 22.4% originated from Argentina, where 100% of soybean cultivation was GM – 15.9% originated from the US, where 93% of soybean cultivation was GM – 7.3% originated from Paraguay, where 95% of soybean cultivation was GM.

As regards food, the number of GM products available for purchase on the Union market is small. Many food business operators have made the choice of not placing GM food on the shelves. This may be linked to the labelling obligations of the GMO legal framework, as well as the availability of non-GM alternatives.

Is GM food and feed labelled?

The EU legislation imposes GM labelling on any GM food and feed containing, consisting of, or produced from a GMO, except if the presence is below 0.9% of the food/feed, or the ingredient is adventitious or technically unavoidable.

The EU legislation does not forbid the use of "GM-free" labels signalling that foodstuffs do not contain GM crops, or were not produced using GMOs, provided that they respect the general rules on food labelling, in particular that the information provided to consumers is not misleading. Some Member States have adopted GM-free labelling schemes for their food and feed products.