

## **ANNEX 1**

### **QUESTIONNAIRE about the socio-economic implications of the placing on the market of GMOs for cultivation**

**16 July 2009**

## **A – Introduction note**

Article 31.7 (d) of Directive 2001/18/EC<sup>1</sup> provides that the Commission should send to the European Parliament and the Council a specific report on the operation of the Directive including inter alia an assessment of the socio-economic implications of deliberate releases and placing on the market of GMOs. These implications are defined in Recital (62) of the Directive as the socio-economic advantages and disadvantages of each category of GMOs authorised for placing on the market, which take due account of the interest of farmers and consumers. In its 2004 report, the Commission noted that there was no sufficient experience to make such an assessment (the Directive became fully applicable as of 17 October 2002 and several Member States had not transposed yet so only little experience of its implementation was available).

Moreover Regulation (EC) No 1829/2003, its articles 7 and 19, asks the Commission to submit a draft of the authorisation decision taking into account, together with the opinion of the Authority in charge of the scientific assessment, "other legitimate factors relevant to the matter under consideration".

At its meeting on 4 December 2008, the Environment Council adopted conclusions on GMOs mentioning among other things the appraisal of socio-economic benefits and risks of placing GMOs on the European market for cultivation. In particular the Council conclusions indicated the following:

"The Council:

7. Points out that under Regulation 1829/2003 it is possible, under certain conditions and as part of a case by case examination, for legitimate factors specific to the GMO assessed to be taken into account in the risk management process which follows the risk assessment. The risk assessment takes account of the environment and human and animal health. Points out that under Directive 2001/18/EC, the Commission is to submit a specific report on the implementation of the Directive, including an assessment, inter alia, of socio-economic implications of deliberate releases and placing on the market of GMO.

Invites the Member States to collect and exchange relevant information on socio-economic implications of the placing on the market of GMOs including socio-economic benefits and risks and agronomic sustainability, by January 2010. INVITES the Commission to submit to the European Parliament and to the Council the report based information provided by the Member States by June 2010 for due consideration and further discussions.

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<sup>1</sup> Directive 2001/18/EC of the European Parliament and of the Council of 12 March 2001 on the deliberate release into the environment of genetically modified organisms and repealing Council Directive 90/220/EEC

This possible consideration of socio-economic factors in the authorisation of GMOs for cultivation has also been raised by several Member States in the Environment and Agriculture Councils of the last months<sup>2</sup>.

In order to respond to the invitation of the Council conclusions of 4 December 2008 and to the requirements of the legislation, the Commission invites Member States to submit all information they would consider relevant by January 2010 at the very latest.

In order to help Member States in structuring their responses, the Commission drafted a non exhaustive list of areas and stakeholders which could be concerned. In addition, for each of these categories, we have introduced in the annex a list of leading questions which could be used where considered appropriate.

When preparing their contribution Member States are invited to report *ex post* on the socio-economic impact of GMOs that have been approved in the EU and cultivated in their territory. Additionally, Member States are also invited to assess *ex ante* the possible implications of GMOs of currently pending approvals as well as those which are under development according to the best of their knowledge. One possible source of information in that respect is that recent report produced by the Joint Research Centre titled "The global pipeline of new GM crops" (available at <http://ipts.jrc.ec.europa.eu>).

The submissions must be as explicit and informative as possible and supported by evidence and data. When feasible, the socio-economic analysis – be it *ex post* or *ex ante* – should be quantified. In case documents are attached, they should be accompanied by a summary of the relevant part and a specification about the argument or topic that is being defended.

Where stakeholders are consulted at national level (e.g. farmers and consumers), we would appreciate it if their responses would be incorporated in your submission in an aggregated fashion. The list of stakeholders consulted, as well as any other pertinent information, may indeed be attached to the questionnaire.

Please note that the contributions must only deal with "socio-economic implications of the placing on the market of GMOs including socio-economic benefits and risks and agronomic sustainability" for each category of GMOs. These contributions should cover cultivation of GMOs and placing on the market of GM seeds.

If you choose to fill in the annexed questionnaire, please consider that answers should be broken down by the purpose of the genetic modification (herbicide tolerant, insect resistance, etc) if this affects the content of the responses.

## **DEADLINE FOR CONTRIBUTIONS: January 2010**

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<sup>2</sup> Environment Council of 2 March 2009, Agriculture Council of 23 March 2009 and Environment Council of 25 June 2009

## **B - Contact Details**

**Member State:**

**Name of ministry/ies contact Person/s:**

**Contact Address:**

**Telephone:**

**Fax:**

**E-mail Address**

## **C – Areas and stakeholders on which Member States are invited to comment**

### **1 - Economic and social implications: influence on concerned economic operators**

#### **Upstream**

##### **1.1. Farmers**

*For each question, answers can be broken down by the range of stakeholders:*

- *farmers cultivating GM crop;*
- *and/or conventional crops;*
- *and/or organic crops;*
- *beekeepers;*
- *seed producers producing GM seeds;*
- *seed producers producing conventional seeds;*
- *seed producers producing organic seeds;*

...

##### **1.2. Seed industry**

*For each question, answers can be broken down by the range of relevant stakeholders, including:*

- *plant breeders;*
- *multiplying companies;*
- *seed producing farmers;*
- *seed distributors;*

...

#### **Downstream**

Consumers;  
Cooperatives and grain handling companies;  
Food and feed industry;  
Transport companies;  
Insurance companies;  
Laboratories;  
Innovation and research;  
Public administration.

#### **Economic context**

Internal market;

Specific regions and sectors.

## **2 - Agronomic sustainability**

Biodiversity, flora, fauna and landscapes

Renewable or non renewable resources

Climate

Transport / use of energy

## **3 - Other Implications**

## ANNEX

### Lead questions per area and stakeholder

*For each question, answers should be broken down:*

- *by the purpose of the genetic modification if this affects the content of the responses,*
- *between ex ante and ex post considerations.*

#### NL introduction

The questionnaire as circulated to the Member States by the European Commission deals exclusively with socio-economic implications of cultivation of GMOs. In the Netherlands, there has been no cultivation of GMO's on a commercial scale to date. In other words, we have no experience with ex-post socio-economic consequences of GMOs. Therefore, this questionnaire as filled in by NL will focus mainly on expected socio-economic implications of GMOs that are not yet authorised in the EU (ex-ante). Please refer to the letter accompanying this questionnaire for further comments of the Netherlands on the issue of socio-economic aspects of GMOs.

### 1. - Economic and social implications

#### Upstream

##### 1.1. Farmers

*For each question, answers can be broken down by the range of relevant agricultural stakeholders farmers*

- *farmers cultivating GM crops;*
- *and/or conventional crops;*
- *and/or organic crops;*
- *beekeepers;*
- *seed producers producing GM seeds;*
- *seed producers producing conventional seeds;*
- *seed producers producing organic seeds;*

...

Has GMO cultivation an impact regarding the following topics? If so, which one?

- farmers' revenues (output prices and agricultural yields);
- farmers' production costs;
- labour flexibility;
- quality of the harvest (e.g. mycotoxins);
- cost of alternative pest and/or weed control programmes;
- price discrimination between GM and non-GM harvest;
- availability of seeds and seed prices;
- dependence on the seed industry;
- farmers' privilege (as established by Article 14 of Regulation (EC) No 2100/94 on Community plant variety rights) to use farm-saved seeds;

- the use of agriculture inputs: plant protection products, fertilisers, water and energy resources;
- health of labour (possible changes in the use of plant protection products);
- farming practices, such as coexistence measures and clustering of GMO and/or non-GMO production;
- cost of coexistence measures;
- conflicts between neighbouring farmers or between farmers and other neighbours
- labour allocation- insurance obligations;
- opportunities to sell the harvest due to labelling;
- communication or organisation between the farmers;
- farmer training;
- beekeeping industry.

Any other impacts you would like to mention:

#### NL answer to 1.1

There has been no cultivation of GMOs in the Netherlands to date. The main reason for this is that the gmo's that have been authorised for cultivation in the EU so far do not have any benefit for farmers in the Netherlands. For example MON810 maize is resistant to the European corn borer, which is not found in the Netherlands.

Looking at GMOs currently in the authorisation procedure, Dutch farmers could in the future be interested in farming GM potatoes that have improved qualities for starch production (for instance production of only amylopectin). Examples currently in the pipeline are the Amflora and, especially and more recently, the newly developed potato Modena. Cultivation of such potatoes could provide significant economic and environmental benefits in the Netherlands. Another GM potato that could have significant benefits is currently being developed in the Netherlands and is in the stage of field testing. The potato will be modified to have multiple resistance to the potato fungus *Phytophthora*. In current agricultural practice in the Netherlands and other countries, this fungus is suppressed by means of large doses of fungicides. The development of this GM potato is financed by the Dutch government. A successful development and cultivation of this potato could lead to a reduction of up to 50% of the use of fungicides in potato cultivation. The first field trials show that the GM potato has an effective resistance to *Phytophthora*.

Several studies conclude that socio-economic aspects or sustainability of gmo crops should be assessed on a case by case basis, taking into account not only the specific characteristics of the gmo event, but also aspects like the cropping system, use of good farming practices or the climate or region where cultivation takes place. Several studies of for instance the Joint Research Centre of the European Commission show that, under the correct circumstances, specific GMOs may contribute to a more sustainable agriculture.

In order to allow for a variety of farming methods within the Netherlands, farmers, organic farmers and seed producers in the Netherlands have, in close cooperation, developed measures to ensure an effective coexistence of cultivation of conventional, GMO and organic crops. These measures will be formalised by the Dutch product board for arable products. Examples of measures included are isolation distances to be taken into account between cultivation of GMOs and non-gmo's, arrangements on how any economical damage resulting from genetic drift from GMO fields can be settled and a fund to cover any damages not accounted for by other measures.

When cultivation of gmo's take place, it is of vital importance that co-existence measures are complied with, to ensure that cultivation of gmo crops does not cause economic damage.



## 1.2. Seed industry

*For each question, answers can be broken down by the range of relevant stakeholders, including:*

- *plant breeders;*
- *multiplying companies;*
- *seed producing farmers;*
- *seed distributors;*

*And/or:*

- *GM seeds;*
- *conventional seeds;*
- *organic seeds;*

*And/or:*

- *industrial / arable crops;*
- *vegetable crops...*

Has GMO cultivation an impact regarding the following topics? If so, which one?

- employment, turn over, profits;
- the production of seeds (easiness/difficulty to find seed producers, easiness/difficulty to find areas to produce these seeds...);
- marketing of seeds;
- the protection of plant breeders rights; - the protection of plant genetic resources.

Does the marketing of GM seeds have an impact on the seed industry and its structure in the EU (size of companies, business concentration, competition policy)? Please specify per sector.

- for plant breeders;
- for seed multiplication;
- for seed producers;
- for the availability of conventional and organic seeds;
- creation/suppression of barriers for new suppliers;
- market segmentation.

Any other impact you would like to mention:

### NL answer to 1.2

No direct impact for stakeholders in the seed industry has been observed in the Netherlands, because there is no commercial cultivation of GM crops in the Netherlands. An indirect impact of GMO cultivation elsewhere is the cost involved in checking imported seed lots for adventitious presence of GM seeds and logistical costs to keep GM and GM free seed distribution lines separate.

## Downstream

## 1.3. Consumers

Has GMO cultivation any impact regarding the following topics? If so, which one?

- consumer choice (regarding quality and diversity of products);

- the price of the goods;
- consumer information and protection;

Any other impact you would like to mention:

#### NL answer to 1.3

There is no cultivation of GM crops in the Netherlands. Therefore, GMO cultivation is not directly impacting on consumer choice.

The availability of food products containing GM ingredients is mainly governed by the policy of food producers and retailers and consumer demand. Currently, the supply of GM food products on the Dutch food market is very limited. In conformity with EU law, any products that contain or consist of GMOs have to be labelled as such to guarantee freedom of choice for consumers.

### **1.4. Cooperatives and grain handling companies**

Has GMO cultivation any impact regarding the following topics? If so, which one?

- work organisation;
- handling and storage;
- transport;
- administrative requirements on business or administrative complexity.

Any other impact you would like to mention:

### **1.5. Food and feed industry**

Has GMO cultivation any impact regarding the following topics? If so, which one?

- range of products on offer;
- employment, turn over, profits;
- work organisation;
- crop handling (drying, storage, transport, processing, etc...);
- administrative requirements on business or administrative complexity;

Any other impact you would like to mention:

### **1.6. Transport companies**

Has GMO cultivation any impact regarding carriers (insurance, cleaning, separate lines...)? If so, which one?

#### NL answer to 1.4 – 1.6

No direct impact for these topics for cooperatives, grain handling companies, and feed and food industry, and transport companies is observed since there is no commercial cultivation of GM crops in the Netherlands.

In the future, commercial GM cultivation may occur in the Netherlands if and when GM crops become available that have an added value as compared to conventional, non GM crops, and the GM crop and derived products are accepted by the market in the Netherlands as well as export markets.

Additional administrative requirements on business or administrative complexity due to GMO cultivation will probably be limited. In accordance with EU and Dutch law, a farmer of GM crops is obliged to register the precise location of cultivation of the GM crops. Industry will register which gmo commodities will be processed, and when they will be processed. This can be done by using existing tracking and traceability systems.

If and when gmo cultivation occurs in the Netherlands, measures will have to be taken in order to prevent mixture of GM and non GM commodities during storage, transport or processing. Companies that process gmo (and non GM commodities) will have to take appropriate measures to prevent mixture.

#### **1.7. Insurance companies**

Does the GMO cultivation have any impact regarding insurance companies (e.g. in terms of developing new products)? If so, which one?

#### NL answer to 1.7

No insurance company has expressed an interest in developing a related product in the Netherlands.

## 1.8. Laboratories

Has GMO cultivation any impact regarding the following topics? If so, which one?

- employment, turn over, profits;
- feasibility of analyses;
- time necessary to provide the results;
- prices of the analyses.

Any other impact you would like to mention:

### NL answer to 1.8

Because there is no commercial cultivation of GM crops in the Netherlands, there is no impact on the mentioned issues. However, cultivation of GM crops in the future could result in an increase in demand for gmo analyses.

## 1.9. Innovation and research

Do GMO cultivation and the technology spill over have an impact on the following topics? If so, which one?

- investment in plant research, number of patents held by European organisations (public or private bodies);
- investment in research in minor crops;
- employment in the R&D centres in the EU;
- use of non-GM modern breeding techniques (e.g. identification of molecular markers);
- access to genetic resources;
- access to new knowledge (molecular markers, use of new varieties in breeding programmes, etc.).

### NL answer to 1.9

There is no commercial cultivation of GMOs in the Netherlands. There are limited specific investments in GMO-breeding but the precise quantity of those investments is not made public by companies. No effect is observed regarding investment in research in minor crops and employment in Dutch R&D centres. Molecular markers are widely used in plant breeding. Development and access to new pre-competitive knowledge by the seed industry is facilitated by the Dutch government through public and private cooperation (e.g. Technological Top Institute Green Genetics). However, partly due to the high costs of acquiring an EU authorisation for GMOs, most SMEs cannot afford to invest in development and commercialisation of GMOs.

Differences in scope of legislation can cause newly developed plant varieties to be considered gmo's under the EU legislation while at the same time being considered conventional varieties under the US legislation. Seed producers in the EU would like to have clarity on which new breeding techniques result in gmo's and which in conventional varieties under EU law. A lasting legal uncertainty in this matter could result in a decrease in investments in innovation and development of new breeding techniques. In 2008, the EC convened a working group which will advise the EC on the safety and status of new breeding techniques. The Netherlands is looking forward to the reaction of the EC on the working group report.

### 1.10. Public administration

Has GMO cultivation any impact regarding the actions of the national public administrations and the necessary budget (national and local level) for example policing and enforcement costs

Any other impact you would like to mention:

#### NL answer to 1.10

As required by EU law, a public database has been put in place to monitor the locations of GM cultivation in the Netherlands (<http://www.vrom.nl/ggo-vergunningverlening>). Because there is currently no GM cultivation in the Netherlands (and field trial locations are incorporated in a separate database), the GM cultivation registry is currently empty.

In the absence of GM cultivation, enforcement of GMO policy in the Netherlands is focussed on contained use, field trials and imported GMO's. This focus will shift to also include GM cultivation, if this starts to take place in the Netherlands in the future.

### Economic context

### 1.11. Internal market

Does the placing on the market of GMO seeds have an impact on the functioning of the EU internal market on seeds? If so, which one?

Does it have an impact on the internal markets for services (if so which impact and which services), for agriculture products and on workers' mobility? If so, which one?

Does GMO cultivation have an impact on monopolies? If so, which ones (emergence/disappearance)?

Does it provoke cross-border investment flows (including relocation of economic activity)?

Any other impact you would like to mention:

#### NL answer to 1.11

Since there is no commercial cultivation of GMOs in the Netherlands, there are no observed impacts in the Netherlands on the mentioned topics.

### 1.12. Specific regions and sectors

*Answers can be broken down on the purpose of the level (national, regional, local) and according to region.*

Has GMO cultivation any regional and local impact in those regions regarding the following topics. If so, which one?

- agriculture incomes;
- farms' size;
- the farm production practices (e.g. increase or decrease of monoculture);
- the reputation regarding other commercial activities of the region/localities.

Any other impact you would like to mention:

#### NL answer to 1.12

Since there is no commercial cultivation in the Netherlands, there are no observed impacts in the Netherlands on the mentioned topics.

When cultivation of GMOs takes place, it is of vital importance that co-existence measures are complied with, to ensure that cultivation of GM crops does not cause economic damage. (see question 1.1)

## **2. - Agronomic sustainability**

### **2.1 Agricultural inputs**

Does the cultivation of EU approved GMOs for cultivation have an impact regarding the use of pesticides against target insect pests (i.e. corn borer)?

Does the placing on the market of GMOs have an impact, and if so which ones, regarding the use of pesticides or/and on the patterns of use of chemical herbicides?

#### **NL answer to 2.1**

Since there is no commercial cultivation in the Netherlands, there are no observed impacts in the Netherlands on the mentioned topics. For reflections on possible effects of future cultivation of GMOs, please see the answers to questions 1.1 and 1.12.

### **2.2. Biodiversity, flora, fauna and landscapes (other impacts than the ones considered in the environmental risk assessment carried out under Directive 2001/18 and Regulation (EC) No 1829/2003)**

Does the cultivation of EU approved GMOs have an impact regarding the number of non agriculture species/varieties?

Does GMO cultivation have an impact on agriculture diversity (number of plant varieties available, agriculture species, etc?)

Does GMO cultivation have an impact, and if so which one, regarding:

- protected or endangered species;
- their habitats;
- ecologically sensitive areas;

Does GMO cultivation have an impact, and if so which one, regarding:

- migration routes;
- ecological corridors;
- buffer zones.

Does GMO cultivation have an impact, and if so which one, regarding:

- biodiversity;
- flora;
- fauna;
- landscapes.

Any other impacts you would like to mention:

### **2.3. Renewable or non-renewable resources**

Does the placing on the market of GMOs have an impact, if so which ones, regarding the use of renewable resources (water, soil...)?

Does the placing on the market of GMOs have an impact, if so which ones, regarding the use of non-renewable resources?

Any other impacts you would like to mention:

**NL answer to 2.2 and 2.3**

Since there is no commercial cultivation in the Netherlands, there are no observed impacts in the Netherlands on the mentioned topics.

## **2.4. Climate**

Does GMO cultivation have an impact regarding our ability to mitigate (other than by possibly reducing CO<sub>2</sub> emissions from fuel combustion – see next section) and adapt to climate change? If so, which ones?

Any other impacts you would like to mention:

**NL answer to 2.4**

Since there is no commercial cultivation in the Netherlands, there are no observed impacts in the Netherlands on the mentioned topics. Possible future cultivation of GM potatoes as mentioned under 1.1 could lead to cheaper and more environmentally friendly starch production.

## **2.5. Transport / use of energy**

Does the cultivation of EU approved GMOs have an impact regarding energy and fuel needs/consumption? If so, which ones?

Does the cultivation of EU approved GMOs have an impact regarding the demand for transport in general terms? If so, which ones?

Any other impacts you would like to mention:

**NL answer to 2.5**

Since there is no commercial cultivation in the Netherlands, there are no observed impacts in the Netherlands on the mentioned topics.



### **3 - Other Implications**

#### NL answer to 3

Please refer to the letter accompanying this questionnaire for further comments of the Netherlands on the issue of socio-economic aspects of GMOs.