ANNEX 1

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

8 January 2010

A – Introduction note

Article 31.7 (d) of Directive 2001/18/EC[1] 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.

[1] 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[2].

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

[2] Environment Council of 2 March 2009, Agriculture Council of 23 March 2009 and Environment Council of 25 June 2009

B - Contact Details

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Introductory remarks

Following the instructions of the Commission, Romania carried out in the fall of 2009 a survey, in order to collect relevant information and asses the socio-economic impact regarding the placing on the market of GMOs for cultivation.
Many actors involved more or less directly in the GMO field were contacted and the questionnaire was distributed among them asking for an opinion by 15 November 2009.
From all the stakeholders including: plant breeders, multiplying companies, seed producers, seed distributors, cooperatives and grain handling companies, food and feed companies, beekeepers, consumers, transport companies, insurance companies, laboratories, public administration, NGOs and ecologist associations as well as organic agriculture organisations, the questionnaire was filled in only by the following:
-Ministry of Agriculture, and Rural Development (MARD)
-National Authority for Consumers Protection (NACP)
-National Environmental Guard (NED)
-National Sanitary Veterinary and Food Safety Authority (NSVFSA)
-Public Health Institute Bucharest (PHIB)
-Monsanto Romania
-Pioneer Hi-Breed Romania
-Syngenta Agro SRL

Despite the fact that many NGOs in Romania are strongly involved in this issue, we did not receive any answer from any of them or from other stakeholders mentioned above.
While the materials presented by the three companies mentioned above are very comprehensive and identical for Syngenta and Pioneer, representing the position of their industry and are based on the latest annual report on the *Global socio-economic and environmental impacts of biotech crops* by Brookes G & Barfoot P and other studies, the **National Environmental Guard** (represents the public institution for inspection and control in environmental protection field) and **Public Health Institute Bucharest,** considered to shortly underline only some of the aspects of the questionnaire.
National Authority for Consumers Protection has limited its answer to the point of the questionnaire 1.3: Consumers, stating that "the GMO cultivation could have an impact through the prices of the goods in the case when theirs prices are considerably reduced compared to the prices of the similarly conventional products. Lately, the consumers choose the goods considering the quality and the prices level. In the same time, the consumers are interested to be informed about the GMO products through labelling. Consumers need to be informed if the products they want to buy contain GMO. In these meaning, the consumers are interested that the traceability is assured."
Ministry of Agriculture and Rural Development also presented very comprehensive response using the same source and giving the same conclusions as Monsanto, Pioneer and Syngenta.
National Sanitary Veterinary and Food Safety Authority, as the responsible authority for official control on traceability and labelling of GM food and feed – provided information about their observations on GM food and feed industry and the analytical control.

For the reasons mentioned above, the answers from the companies and from the Ministry of Agriculture and Rural Development are going to be attached to the questionnaire, while we will try for every question to summarize their position (while mentioning Monsanto for the common position), tacking into account the references only for Romanian territory and only for varieties approved for cultivation in EU. Also, we will emphasize the other answers from the Romanian authorities: MADR, NACP, NEG, NSVFSA, PHIB.

Romania is applying the Communitaire acquis only since 2007. It should be noted that until 2007 GM HT soybean was the only GMO cultivated in Romania, so the impact is mostly known for this crop. For unknown reasons which may include insufficient experience, all the factors involved except GM seed industry and some of the authorities were not willing to respond to the questionnaire. Accordingly, we can say that overall, this is not a relevant and /or balanced position for Romania to reflect the opinion on socio-economic advantages and disadvantages of each

category of GMOs authorized, more like an opinion of GM industry and of the authorities mentioned above.

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.

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);*

When **Monsanto** refers to the only trait approved for cultivation in EU, MON810, it states that the main impact on farm profitability of growing GM IR maize has been via increased yields, which varies by region and year, with the additional yield effects being lower than average in years of low pest pressure and higher than average in years of high pest pressure.(Brookes,2009). Monsanto also states that: "At the level of 2007, the average yield impact due to the use of Bt corn was estimated for Romania at 7%. In 2007-2009, the technology cost varied around 30E/ ha. If we consider just the direct incremental yield, estimated at 700 kg/ha in 2008 (a year with moderate corn borer infestation) at a farm gate market price of 95E/tonne, the net gain is of 36.5E/ha. In a year with high insect pressure, the production gain will go up accordingly – and so will do the farm income."

MARD states that MON 810 have delivered positive yields impacts in Romania. MARD also presents in a table a summary of the impact of GM IR technology in Romania. This shows that in 2007, the additional farm income derived from using GM IR technology in Romania was +0,01 million$.

Nevertheless, in 2008, the area cultivated with GM IR maize (MON 810) in Romania was 7146 ha and in 2009 were cultivated 3243,5 ha.

MARD states that interviewed farmers who cultivated larger areas of 500-1000 ha in 2008 and 2009 said that GM maize MON 810 provides the advantages of production bonuses ranging between 10-15% and eliminates the risk of production losses due to insects attack and other diseases that are easier on the plants installed under appeal.

PHIB states that the GMO cultivation has an impact on farmer's revenues, not mentioning which is this impact.

- *farmers' production costs*

Monsanto refers to some authors mentioning cost reductions compared to the conventional technology results both from not using insecticide chemicals to control the pest, as well as from the associate fuel and water.

MARD states that interviewed farmers who cultivated larger areas with MON810 of 500-1000 ha in 2008 and 2009 observed lowered cost of production through economies of time, energy, insecticides.

PHIB states that the GMO cultivation has an impact on farmer's production costs, not mentioning which is this impact.

- *labour flexibility*

MARD mentions increased convenience and management flexibility.

- *quality of the harvest (e.g.mycotoxines)*

Monsanto states that by adopting GM IR MON810 trait, important improvements in grain quality from significant reductions in the levels of mycotoxins in grain have been reported.

MARD states that interviewed farmers who cultivated larger areas with MON810 of 500-1000 ha in 2008 and 2009, showed benefits in terms of final product safety- lower levels of mycotoxins in maize that show resistance to this pest.

PHIB states that the GMO cultivation has an impact on the quality of the harvests, not mentioning which is this impact

- *cost of alternative pest and/or weed control programmes*

Monsanto observed better control against pests during the entire vegetation period (see also pc. b .) not mentioning any cost.

PHIB states that the GMO cultivation has an impact on the cost of alternative pest and/or weed control programmes, not mentioning which is this impact

- *price discrimination between GM and non-GM harvest*

- *availability of seeds and seed prices*

MARD states that "In 2007-2009, the technology cost varied around €30 ha. If we consider just the direct incremental yield, estimated at 700 kg/ha in 2008 (a year with

moderate corn borer infestation) at a farm gate market price of € 95/tonne, the net gain is of 36.5 €/ha. In a year with high insect pressure, the production gain will go up accordingly."

- *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;*

see pc. b)

PHIB states that the GMO cultivation has an impact on the use of agriculture inputs, not mentioning which is this impact

- *health of labour (possible changes in the use of plant protection products*

Monsanto mentioned as intangible benefit that farmers are no longer exposed to insecticides

MARD states that interviewed farmers who cultivated larger areas with MON810 of 500-1000 ha in 2008 and 2009, noticed that cultivation of MON810 is reducing the toxicity and health-benefits for farmers (by reducing the number of applications of insecticides).

PHIB states that the GMO cultivation has an impact on the health of labour, not mentioning which is this impact

- *farming practices, such as coexistence measures and clustering of GMO and/or non-GMO production*

MARD states (also Pioneer and Syngenta) that: "Overall, evidence from both commercial practice, and research shows that GM, conventional and organic growers of maize have co-existed, and can co-exist and maintain the integrity of their crops without problems through the application of good farming and co-existence practices". Also, MADR states, with reference to a self financed project named: *Evaluation of the farm level impact of culture technologies of maize in Romania, on biodiversity and the quality and quantity of harvest*, that "the results of the Romanian researches show that when co-existence measures are applied (isolation distances, cleaning of sowing and harvesting equipment) ensure compliance with legal provisions regarding labeling.

- *cost of coexistence measures*

- *conflicts between neighbouring farmers or between farmers and other neighbours*

NEG observed conflicts between neighbouring farmers and 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:

MARD states that companies that provided the Bt corn technology in their hybrids in the 3 years after Romania's accession also sold their conventional counterparts, as the Bt technology is appropriate only in those regions with insect pressure. The market is quite competitive, with most big players present with their most recent products in every maturity group. Likewise, there are smaller operators (local), while public research Institutes (Fundulea, Turda) are present on the market with about 23% of the total certified seed sold (Kleffman Group 2009).

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:
-

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; -

As mentioned, **NACP** states that the GMO cultivation could have an impact through the prices of the goods in the case when theirs prices are considerably reduced compared to the prices of the similarly conventional products.

NACP states also that lately, the consumers choose the goods considering the quality and the prices level. In the same time, the consumers are interested to be informed about the GMO products through labelling. Consumers need to be informed if the products they want to buy contain GMO. In these meaning, the consumers are interested that the traceability is assured.

Any other impact you would like to mention:-

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:

NSVFSA: Especially the feed industry needs large amount of GMOs. Those GMOs (eg. soybean and maize) are imported in important quantities from third countries where their cultivation is permitted. There are some examples of factories that stopped their activity (due to the high prices asked by exporters for raw materials and because of the fact that cultivation of soybean was stopped in RO beginning with 2007, and the surfaces cultivated with conventional soybean are small)

1.6. Transport companies

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

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?

Monsanto states that in Romania, because of the limitated use of the GM technology in agriculture, there has not been any reported impact regarding the crop insurance mechanism.

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.*

MARD reminds that the Institute of Food Bioresources IBA performs the analysis in official control of seeds for sowing. In December 2006, IBA was accredited (by National Accreditation Body RENAR) to perform detection and quantification of CP4 EPSPS protein from RUR soybean and Cry1Ab protein from MON810 maize, accordingly to the SR EN ISO/CEI 17025/2005. IBA is also member of ENGL since 2007.
In this activity are involved 6 people. The prices of the analyses is ≈ 90 Eur/sample and the profits is ≈10 %.
The time necessary to provide the results is 10 days / 30 samples.

Any other impact you would like to mention:

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);*

MARD states that : « The development of biotech crops entails long process and significant costs. These include research costs in developing the technology and the regulatory costs that account for the real resources used, government regulation, transitional costs, and social welfare costs. There are no estimates of development and regulatory costs involved in the development of a GM crop in UE.
Organisations (public or private bodies) from the UE have invested mainly in biosafety research. Because of the very restrictive legislation, public institution are not capable to invest, or even though they go through the preliminary phases they are nor able to bring it to completion because of the prohibitive costs. »

Monsanto states that Organisations (public or private bodies) from the UE have invested mainly in biosafety research. Because of the very restrictive legislation, public institution are not capable to invest, or even though they go through the preliminary phases they are nor able to bring it to completion because of the prohibitive costs.

- *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); -

MARD and also Monsanto are stating that there are o lot of new technologies used in breeding, some of them being subject to the GMO regulations.

- access to genetic resources; -

- access to new knowledge (molecular markers, use of new varieties in breeding programmes, etc.). -

PHIB states that the GMO cultivation and technology spill over have an impact on the topics a) and f) mentioned above, not mentioning which is this impact.

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 ?

NEG states that there is an impact on carrying out inspections to the GMO cultivators and users in order to check the way there are respected the regulations papers concerning the environmental protection and the environmental laws existing in Romania.

MARD states that under current legislation, the cost analysis of seeds is borne by the operators. The cost of field testing, from plant tissue is supported by the Ministry of Agriculture.

NSVFSA – states that the current legislation imposes, for official control of traceability and labelling of GM food and feed, a significant no. of qualitative and quantitative analysis and a no. of samples to be taken by official inspectors. Those costs are supported from the state budget according to the yearly allocation, which is not covering all the transformation events listed in the Community Register of GM food and Feed.

Any other impact you would like to mention: -

Economic context

1.11. Internal market

NEG responded to these questions, as mentioned below:

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?

"Yes: competition for the non - GMO seeds."

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?

"Yes: a reason to make the agriculture products more competitive".

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

"Yes, both: emergence and disappearance."

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

"Yes**"**

MARD and **Monsanto** are stating that **"**Several companies active on the Romanian market and licensed for MON810 technology have explored opportunities to provide their own seeds with the incorporated trait. Similarly, back in 2005-2006, Pioneer was licensed by Monsanto to sell the RR soybean trait in their own varieties. This demonstrates that Monsanto has enabled the use of its traits in competing products. This way, farmers had choice. In 2008 and 2009, only Monsanto and Pioneer biotech hybrids were available on the market, because the other players did not pursue this business. Which combinations of traits and hybrids farmers will choose to plant in the future, (especially as other traits may become available in EU), will be a rational decision based on the problem that the concerned products can address and at what cost"

Any other impact you would like to mention:

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.*

MARD considers that the size of farm has not been a factor affecting use of the biotechnology. Biotechnology adoption has been by both large and small farmers, with size of operation not having been a barrier to adoption. Since 2007, when Romanian farmers began cultivating the IR GM maize (MON 810), the GM technology being adopted by farmers within a range of 2 hectares to over 1000 hectares.

PHIB states that the GMO cultivation has regional and local impact in specific regions and sectors on the agriculture incomes, not mentioning which is this impact.
Any other impact you would like to mention:

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)?

PHIB states that the cultivation of EU approved GMOs have no impact regarding the use of pesticides against target insect pests.

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?

PHIB states that the placing on the market of EU approved GMOs have an impact regarding the use of pesticides or/and on the patterns of use of chemical herbicides, not mentioning which is this impact.

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?

MARD and PHIB believes that there is no impact.
The answer of MADR is based on the result to a self financed project, mentioned above: Evaluation of the farm level impact of culture technologies of maize in Romania, on biodiversity and the quality and quantity of harvest.
NEG affirms the contrary.
Neither PHIB or NEG present no arguments on theirs opinion.

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

MARD and PHIB believes that there is no impact.
The answer of MADR is based on the result to a self financed project, mentioned on previous question.
NEG affirms the contrary.
Neither PHIB or NEG present no arguments on theirs opinion.

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

- *protected or endangered species;*

MARD opinion is that there is no impact.

- *their habitats;*

MARD opinion is that there is no impact.

- *ecologically sensitive areas;*

NEG opinion: impact on ecologically sensitive areas
PHIB opinion: no impact

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

- *migration routes;*

- *ecological corridors;*

- *buffer zones.*

MARD opinion : no negative effects
PHIB opinion : no impact
NEG opinion : no impact

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

- *biodiversity;*

- *flora;*

- *fauna;*

- *landscapes.*

PHIB opinion : no impact
NEG opinion: impact on biodiversity by the introduction and the emergence of new species.

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?

PHIB opinion : no impact

Any other impacts you would like to mention:

2.4. Climate

Does GMO cultivation have an impact regarding our ability to mitigate (other than by possibly reducing CO2 emissions from fuel combustion – see next section) and adapt to climate change? If so, which ones?

PHIB opinion : no impact
NEG opinion : no impact

Any other impacts you would like to mention:

Monsanto states that **«** there is a growing body of literature showing that biotech crops made a significant contribution to reducing greenhouse gas emissions from agricultural practices". The company refers at: *Brookes 2008, Global impact of biotech crops: socio economic and environmental impacts 1996 – 2006,* also other papers.

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?

NEG opinion : no impact
PHIB opinion : Have an impact reducing the fuel consumption

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

NEG opinion : no impact
PHIB opinion : no impact

Any other impacts you would like to mention:

3 - Other Implications

MARD believes that the use of biotechnology in agriculture creates premises to achieve production at lower cost per unit area, obtain higher returns from crops, improve farmers' income and not least the environmental protection through significant reduction of the number of active formula (chemical compounds) and quantities of products to combat diseases / pests and weeds applied to unit area.