Adviesraad voor Bioveiligheid
Conseil consultatif de Biosécurité

Advice of the Belgian Biosafety Advisory Council on application EFSA-GMO-RX-007 from Monsanto under Regulation (EC) No. 1829/2003

Adopted on 17 April 2018
Ref. SC/1510/BAC/2018_0215

Context

Application EFSA-GMO-RX-007 was submitted by Monsanto on 22 December 2016 for the renewal of authorisation for the marketing of genetically modified (GM) maize NK603 x MON810 for food and feed uses, import and processing (excluding cultivation) within the European Union (EU), within the framework of Regulation (EC) No. 1829/2003[1].

Maize NK603 x MON810 contains genes that express CP4 EPSPS and Cry1Ab, conferring tolerance to glyphosate herbicides and resistance to certain lepidopteran insect pests.

The placing on the market of maize NK603 x MON810 for food/feed uses, except cultivation, is currently authorised by Commission Decision 2007/701/EC of 24 October 2007 (application EFSA-GMO-UK-2004-01), following a positive opinion of EFSA on 13/10/2005 (http://www.efsa.europa.eu/en/efsajournal/pub/309), and a positive advice of the BAC on 08/05/2006.

The application was officially acknowledged by EFSA on 18 April 2017 and a formal three-month consultation period of the Member States was started, lasting until 1 August 2017, in accordance with Articles 6.4 and 18.4 of Regulation (EC) No. 1829/2003 (consultation of national Competent Authorities within the meaning of Directive 2001/18/EC designated by each Member State in the case of genetically modified organisms being part of the products).

Within the framework of this consultation, the Belgian Biosafety Advisory Council (BAC), under the supervision of a coordinator and with the assistance of its Secretariat, contacted experts to evaluate the dossier, chosen from the common list of experts drawn up by the BAC and the Biosafety and Biotechnology Unit (SBB). Six experts answered positively to this request, and formulated a number of comments to the dossier. See Annex I for an overview of all the comments. None of the comments were sent to EFSA.

The opinion of the EFSA Scientific Panel on GMOs was adopted on 24 January 2018 (EFSA Journal 2018;16(2):5163[2]), and published on 26 February 2017 together with the responses from the EFSA GMO Panel to comments submitted by the Member States during the three-month consultation period.

The comments formulated by the experts together with the opinion of EFSA, as well as the advices already adopted by the BAC on stacked events containing maize NK603 or MON810 and the advices already adopted by the BAC on other GM single events expressing the CP4 EPSPS and Cry1Ab proteins, form the basis of the advice of the Biosafety Advisory Council given below.

[1] Regulation (EC) No 1829/2003 of the European Parliament and of the Council of 22 September 2003 on genetically modified food and feed (OJ L 268, 18.10.2003, p.1).
[2] See https://www.efsa.europa.eu/en/efsajournal/pub/5163

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Scientific evaluation

1. Post-market environmental monitoring

The Biosafety Advisory Council welcomes the annual post-market environmental monitoring (PMEM) reports provided by the applicant during the period March 2008 to July 2016, and takes note of the absence of adverse effects reported by the applicant during the authorisation period of maize NK603 x MON810.

2. Systematic search and evaluation of literature

The Biosafety Advisory Council welcomes the systematic literature search covering the complete duration of the event's authorisation conducted by the applicant following the principles outlined in the relevant EFSA guidance.
The Council agrees with the GMO panel of EFSA that no scientific publications has been identified which is relevant for the risk assessment of maize NK603 x MON810 which could raise any new concerns regarding the safety for human or animal health or the environment.

3. Updated bioinformatics

The Biosafety Advisory Council agrees with the GMO panel of EFSA that the updated bioinformatics analyses for GM maize NK603 x MON810 do not indicate any safety concern, as no known endogenous genes are interrupted by the inserts, the newly expressed proteins do not present significant similarities to known toxins or allergens, and newly created open reading frames within the insert or spanning the junctions with genomic DNA revealed no significant similarities to toxins and allergens.

4. Additional documents or studies

The Biosafety Advisory Council welcomes the reports of additional studies performed by the applicant over the course of the authorisation period with regard to the evaluation of the safety of the food/feed and the risks of the food/feed to humans, animal or the environment from maize NK603 x MON810.
The Council agrees with the GMO panel of EFSA that this new information does not raise any concern for human and animal health, and the environment.

5. Overall assessment

The Biosafety Advisory Council agrees with the GMO panel of EFSA that no new information has given rise to any concern for human or animal health or the environment.

6. Monitoring plan and proposal for improving the conditions of the original authorisation

Since the allergenicity of the whole GM maize has not been fully assessed, it is recommended to take up monitoring of allergenicity as part of the general surveillance.

Conclusion

Based on the scientific assessment of the dossier done by the Belgian experts, taking into account the opinion of EFSA, the previous advice of the BAC on maize NK603 x MON810, the advices already adopted by the BAC on stacked events containing maize NK603 or MON810 and the advices already adopted by the BAC on other GM single events expressing the CP4 EPSPS and/or Cry1Ab protein, and considering the new information provided by the applicant, the Biosafety Advisory Council is of the opinion that in the context of its proposed uses, maize NK603 x MON810 is unlikely to pose any risk to human and animal health.

The Biosafety Advisory Council did not identify any risk that the import and processing of this GM maize could pose to the European environment.

In addition the Biosafety Advisory Council recommends following up any unanticipated allergenicity aspects of the GM maize in the existing allergenicity monitoring systems.

Dr. Corinne Vander Wauven
President of the Belgian Biosafety Advisory Council

Annex I: Compilation of comments of experts in charge of evaluating the application EFSA/GMO/RX-007 (ref. BAC_2017_0596)

Bioveiligheidsraad
Conseil de Biosécurité

Secretariaat
Secrétariat

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02/08/2017

Compilation of comments of experts in charge of evaluating the application EFSA/GMO/RX-007
and
Comments submitted on the EFSAnet on mandate of the Biosafety Council

Mandate for the Group of Experts: Mandate of the Biosafety Advisory Council (BAC) of 25 April 2017
Coordinator: Dr. Geert Angenon
Experts: Leo Fiems (ILVO), Johan Grooten (UGent), André Huyghebaert (UGent), Peter Smet (Consultant), Frank Van Breusegem (UGent), Jacques Dommes (ULg)
SBB: Didier Breyer, Fanny Coppens, Katia Pauwels.

- **INTRODUCTION**

Dossier **EFSA/GMO/RX-007** concerns an application for renewal submitted by the companies **Monsanto** for authorisation to place on the market genetically modified **maize NK603 x MON810** in the European Union, according to Regulation (EC) No 1829/2003 on genetically modified food and feed.
The application has been officially acknowledged by EFSA on 18 April 2017.

The scope of the application is:
☒ GM plants for food use
☒ Food containing or consisting of GM plants
☒ Food produced from GM plants or containing ingredients produced from GM plants
☒ GM plants for feed use
☒ Feed produced from GM plants
☒ Import and processing (Part C of Directive 2001/18/EC)
☐ Seeds and plant propagating material for cultivation in European Union (Part C of Directive 2001/18/EC)

Depending on their expertise, the experts were asked to evaluate the renewal submission, which should contain (1) a copy of the authorisation for placing the food/feed on the market, (2) a report on the results of the monitoring, if so specified in the authorisation (3) any other new information, which has become available, with regard to the evaluation of the safety of the food/feed and the risks of the food/feed to humans, animals or the environment, (4) where appropriate, a proposal for amending or complementing the conditions of the original authorisation, inter alia the conditions concerning future monitoring. Those aspects were evaluated with regards to their molecular, environmental, allergenicity, toxicity and/or food and feed aspects. If information was lacking, the expert was asked to

indicate which information should be provided and what the scientifically reasoning is behind this demand.

The comments are structured as in the "Guidance for renewal applications of genetically modified food and feed authorised under Regulation (EC) 1829/2003" (EFSA Journal 2015;13(6):4129. Items are left blank when no comments have been received either because the expert(s) focused on other related aspects, or because for this dossier the panel of experts who accepted to evaluate the dossier didn't have the needed expertise to review this part of the dossier.
It should be noted that all the comments received from the experts are considered in the evaluation of this dossier and in formulating the final advice of the Biosafety Advisory Council. Comments placed on the EFSAnet are indicated in grey.

List of comments/questions received from the experts

A. GENERAL COMMENTS

Comment 1
The possibility that the genetic modification of NK603 x MON810 maize is detrimental for animal and human health and the environment is neglectable.
Because the genetic modification of NK603 x MON810 maize is intended to the application of glyphosate in maize for weed management, it is interesting that a maximum residue level of 1.0 mg/kg for glyphosate is respected.
Although NK603 x MON810 maize is not intended for cultivation in the EU, the intensive use of other glyphosate-tolerant GM crops beside NK603 x MON810 maize around the world can result in a fast development of glyphosate-tolerant weeds, so that the sustainability of NK603 x MON810 maize is questionable.
Because of the debate concerning the safety of glyphosate the post-market surveillance should pay attention to this issue.

SBB Comment:
The assessment of pesticide use is not within the remit of the Biosafety Advisory Council.

Comment 2
No comments.

Comment 3
No general comment or question

Comment 5
No comment

B. DATA REQUIREMENTS

B.1. COPY OF AUTHORISATION FOR PLACING THE FOOD/FEED ON THE MARKET

N/A

B.2. POST-MARKET MONITORING AND POST-MARKET ENVIRONMENTAL MONITORING REPORTS

Comment 1
No concerns regarding risk to human and animal health have emerged from the monitoring reports.

Comment 1
The applicant concludes that the monitoring reports do not change in any way the conclusions of the original risk assessment.
The surveillance network consists of associations on the European level of:
- importers, traders,
- silo operators,
- processors.

No relevant observations are reported.

It seems however that end-users are not involved in the network. End-users mean the food and feed industry particularly those involved in product formulation, quality assessment and others. They are well situated to observe any shift or modification in the properties of the end product of the wet and dry milling process such as maize germ oil, starch, maize meal and others.
I wonder if they could not be involved in one or another way in the network.

B.3. NEW INFORMATION

B.3.1. SYSTEMATIC SEARCH AND EVALUATION OF LITERATURE:

Comment 1
Because most new information is quasi uniquely provided by the applicant, some vigilance is desirable.

Comment 2
A comprehensive and systematic search of scientific peer-reviewed open literature has been performed covering the period 2007-2016. This analysis did not reveal concerns relating to human and animal health.

Comment 3
No comments

B.3.2. UPDATED BIOINFORMATICS

Comment 1
Because most new information dealing with Bioinformatics is quasi uniquely provided by the applicant, some vigilance is desirable.

Comment 2
The updated sequence similarity assessment to known allergens by bioinformatics analyses yielded no significant amino acid sequence similarities with known allergens.

Comment 3
The bioinformatic evaluation of the Cry1Ab protein sequence in MON 810 indicates no relevant sequence similarity of Cry1Ab to allergens, toxins, or other biologically active proteins that could be harmful to human or animal health.
The results of these analyses indicate that there were no biologically relevant sequence similarities to allergens or toxins when the CP4 EPSPS protein sequence was used as a query for a FASTA search of the AD_2016 or TOX_2016 database. When searching the PRT_2016 database, results confirm that no biologically relevant structural similarity to proteins of concern was observed for CP4 EPSPS sequence.
The bioinformatic evaluation indicates that no biologically relevant sequence similarities between allergens, toxins, or other biologically active proteins with the CP4 EPSPS L214P.

Comment 4
No comments

Comment 6

The applicant updated the bioinformatics analyses on databases updated in 2016. These analyses confirmed the ones performed previously. I agree that they do not rise any safety concern.

B.3.3. ADDITIONAL DOCUMENTS OR STUDIES PERFORMED BY OR ON BEHALF OF THE APPLICANT

Comment 1
No comments

C. OVERALL ASSESSMENT

Comment 1
The same side remark as made in dossier RX005 is applicable also for this dossier: 'While a discussion is ongoing on the health risk of extended glyphosate usage, this discussion in essence does not relate to the health risk of the transgenic mEPSPS protein. It may raise however the issue of glyphosate residue levels on glyphosate resistant GA21 maize, which clearly is an entirely different, yet highly relevant discussion.'
No further remarks.

SBB Comment:
Dossier RX005 related to glyphosate resistant GA 21 maize.

D. MONITORING PLAN AND PROPOSAL FOR IMPROVING THE CONDITIONS OF THE ORIGINAL AUTHORISATION

Comment 1
No comments

Comment 2
I agree with this conclusions of the applicant.