TESTBIOTECH Background 23 - 12 – 2019 (a)

Technical background for a request for internal review of administrative acts under Article 10 of Regulation (EC) No. 1367/2006 against the decision of the EU Commission to renew the market authorisation for genetically engineered soybean A2704-12 under Regulation (EC) No 1829/2003 (application EFSA-GMO-RX-009) from company Bayer

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Summary and conclusion

Soybean A2704-12 was first authorised for import into the EU 10 years ago. The EFSA GMO panel recently re-assessed this genetically engineered soybean, which is resistant to glufosinate, for renewal of authorisation (EFSA 2019). According to EU law, the renewal application should been based on Implementing Regulation (EU) No 503/2013, this was however not the case.

At least two major deficiencies arise from the failure to apply the Implementing Regulation:

- no data representative for the agricultural practices under which the soybeans are expected to be cultivated were requested as stated in the Implementing Regulation.
- no subchronic animal feeding study complying with the standards defined in the Implementing Regulation was carried out.

More generally, the EFSA re-assessment completely ignores the fact that there has been a considerable increase in problems with herbicide resistant weeds over the last ten years; and that the number of sprayings and the amount of complementary herbicide sprayed is now higher than it was then.

New data must be provided by the company before any decision is made on the safety and renewal of market authorisation for the GE soybean.

Consequently, the decision of the EU Commission to renew market authorisation is not in line with EU law and has to be revoked.

This situation also has legal consequences for all stacked soybean events derived from A2704-12 because they no longer have a sufficient legal basis for import and usage in food and feed.

Introduction and overview of legal framework

Basic principles of the GMO regulation are:

- Firstly, before any GMO is authorised, the risk and safety assessment must show that the genetically modified organism is safe. GMOs must not: "have adverse effects on human health, animal health or the environment" (Articles 4(1)(a) and 16(1)(a) of the GM Regulation).
- Secondly, when assessing the safety of GMOs, the authority should err on the side of caution and apply the precautionary principle. In cases of doubt or where "the possibility of harmful effects on health is identified but scientific uncertainty persists", provisional measures may be taken to protect against any such risk eventuating as harm.
- Further, Regulation 1829/2003 states that genetically engineered organisms "should only be authorised for placing on the Community market after a scientific evaluation of the highest possible standard." (Recital 9 of Regulation 1829/2003).

In 2013, Implementing Regulation (EU) No 503/2013 came into force which has to be applied to applications under Regulation 1829/2003 after 8 December 2013. It provides "*specific rules to ensure that the scientific information required in the application adequately and sufficiently demonstrates that the genetically modified food or feed satisfy the requirements laid down in Regulation (EC) No 1829/2003, in respect of their proposed uses."* (Recital 8 of the Implementing Regulation).

The Implementing regulation 503/2013 has to be applied not only for new applications but also for the renewals. As it is explained in Recital 21: *"In order to ensure that test methods included in the application are adequate to demonstrate that the food or feed complies with the requirements for authorisation set out in Regulation (EC) No 1829/2003, they should be carried out in accordance with the present Regulation, or internationally agreed guidelines such as those described by the OECD, when available. To ensure that applications for renewal meet the same standards as regards tests methods, it is appropriate that these requirements also apply to application for renewal of authorisation of GM food and feed."*

On 28 November 2019, based upon an EFSA opinion, the EU Commission renewed the approval of GE Soybean A2704-12. In this technical background, which is based upon the analysis of the risk assessment that was carried out, we show that EFSA´s opinion and the decision of the Commission do not fulfill the requirements of EU regulation.

Reasons for requesting internal review and revocation of the EU Commission decision

The grounds for the request for internal review are:

A) EFSA's risk assessment should have been rejected for following reasons:

1. Despite being required by EU regulation, EFSA did not apply Implementing Regulation 503/203 for the assessment of the application.
2. More specifically, EFSA did not request data necessary to assess whether the expected agricultural practices influence the expression of the studied endpoints.

3. More specifically, EFSA did not request feeding studies in accordance with the standards defined in the current Regulation.

B) The decision of the EU Commission fails to fulfill the requirements for the following reason:
Since EFSA and the "applicant [did not] ensure that the final risk characterisation clearly demonstrates that the genetically modified food and feed has no adverse effects on human and animal health", the EU Commission decision to allow the import was not in accordance with the EU regulations.

Art. 10 of EU Regulation 1367/2006 allows NGOs active in the field of environmental protection to request re-examination of Commission decisions. Based upon this regulation, we request the re-examination of the risk analysis by EFSA and the EU Commission as well as immediate withdrawal of market authorisation for soybean A2704_12.

Detailed evidence for EFSA's risk assessment should have been rejected:

1. EFSA did not apply Implementing Regulation (EU) No 503/2013 for the assessment of the application.

As stated by EFSA (2019) in the "*Background*":

> *"On 3 November 2017, the European Food Safety Authority (EFSA) received from the European Commission (DG SANTE) application EFSA-GMO-RX-009 by Bayer CropScience N.V. for the renewal of authorisation of genetically modified (GM) soybean A2704-12 (Unique Identifier ACS-GMØØ5–3) for the placing on the market of products containing, consisting of, or produced from this GM soybean for import and processing submitted within the framework of Regulation (EC) No 1829/2003 1 . Before sending the application to EFSA, the European Commission confirmed whether the data submitted in the context of this renewal application were in line with the legal requirements laid down in Articles 11 and 23 of Regulation (EC) No 1829/2003.* (page 5 of the EFSA Opinion)

Two important pieces of information can be taken from this statement: (1) The renewal application was filed after 8 Dec 2013, therefore, the application of the Implementing Regulation 503/2013 is mandatory. (2) EFSA only applied Regulation 1829/2003 and its own guidance, but not the Implementing Regulation as foreseen by law.

Therefore, the EU Commission should have rejected the EFSA opinion as a whole since it is not in line with the EU Regulation.

We are aware of several deficiencies in the EFSA assessment which arise from this failure to comply with EU law. In the following, we exemplify three deficiencies in more detail:

2. EFSA did not request data necessary to assess whether the expected agricultural practices influence the expression of the studied endpoints.

In regard to the expression of the additionally inserted genes, Implementing Regulation 503/2013 requests "*protein expression data, including the raw data, obtained from field trials and related to the conditions in which the crop is grown*".

Further, Implementing Regulation 503/2013 requests:

> *"The different sites selected for the field trials shall reflect the different meteorological and agronomic conditions under which the crop is to be grown; the choice shall be explicitly justified. The choice of non-genetically modified reference varieties shall be appropriate for the chosen sites and shall be justified explicitly."*

However, the data presented do not represent expected agricultural practices or the different meteorological and agronomic conditions under which the crop is to be grown. The field trials were not conducted in all relevant regions where the soybean will be cultivated, and no extreme weather conditions, such as those that have occurred more frequently in the last ten years, were taken into account.

In accordance with Implementing Regulation 503/2013, EFSA should have requested data that takes into account the increased number of times that glufosinate is sprayed because of problems with herbicide-resistant weeds.

In the past ten years, agricultural practice in the cultivation of herbicide-resistant soybeans has changed considerably; there has also been a substantial increase in the number of regions where these soybeans are grown and, therefore, new field trials should have been requested from the applicant for all relevant regions. It has to be assumed that the plants will be exposed to higher dosages and sprayed more frequently with the complementary herbicide in comparison to agronomic practice 10 years ago. The USDA data base shows a strong increase in overall pesticide applications in soybean cultivation within last ten years, with substantial dosages of glufosinate being applied (https://www.nass.usda.gov/Quick_Stats/Lite/result.php?D75C3928-1132-3841-B70A-4C3762564BC5). According to USDA, the average applications of glufosinate (a.i.) were 0,7 kg/ (a.i.) ha in 2018, with an application rate of 1,4. Bayer in its own recommendations suggests up to 1,6 kg (a.i.)/ha. This is in line with Monsanto, which in its patent application WO2008051633 recommends up to 1,6 kg (a.i.) / ha of glufosinate to be sprayed in the soybean cultivation. It has to be assumed that similar dosages are also applied in regions with high weed pressure. A higher number of pesticide applications will not only lead to a higher burden of residues in the harvest, but may also influence gene expression, plant composition and agronomic performance due to the additionally inserted gene constructs.

As recently shown (Miyazaki et al., 2019), higher dosages of the complementary herbicide being applied on the plants will not only lead to a higher burden of residues in the harvest, but may also influence the expression of the transgenes or other genome activities in the plants. These changes may have a serious impact on health since soybeans are known to produce many bioactive compounds such as allergens and oestrogens.

This aspect, which is highly relevant in regard to this specific event, was completely ignored in the risk assessment. Both the practical conditions in large-scale cultivation in specific regions and increasing weed pressure were left aside.

To assess the relevant endpoints (such as gene expression, plant composition and phenotypical characteristics), EFSA should have requested that Monsanto / Bayer submit data from adequate field trials sprayed with higher dosages of the complementary herbicide, also including repeated spraying.

Further, data representing more extreme environmental conditions, such as those caused by climate change, would have been necessary.

3. EFSA did not request feeding studies in accordance with the standards defined in current Regulation.

Implementing Regulation 503/2013 requests that subcronic feeding study is performed with whole feed and food. There are specific standards that have to be fulfilled:

> *"The design of the toxicity study with genetically modified food and feed should be performed according to the 'subchronic oral toxicity test repeated-dose 90-day oral toxicity study in rodents' (see Table 1) following an adapted protocol. In principle a minimum of two test doses and a negative control shall be used. The highest dose shall be the maximum achievable without causing nutritional imbalance; the lowest dose shall contain the tested food and/or feed in an amount always above the anticipated human/target animal intake level. The genetically modified food and feed analysed should be relevant to the product to be consumed. In the case of herbicide tolerant genetically modified plants, the tested material should come from the genetically modified plant exposed to the intended herbicide. Whenever possible, information on natural variation of test parameters shall be derived from historical background data rather than from the inclusion of reference varieties, consisting of commercially available food and feed derived from non-GM plants with a history of safe use, in the experiments. The statistical analysis shall focus on the detection of possible differences between the test material and its control. A power analysis to estimate a sample size capable of detecting a pre-specified biologically relevant effect size with a specified power and significance level should be used. More detailed guidance for performing this study is provided in the EFSA Guidance on conducting repeated-dose 90-day oral toxicity study in rodents on whole food/feed."* (Emphasis aded)

However, the applicant neither provided a subchronic feeding study for the original application (see EFSA, 2007), nor for the renewal application (see EFSA 2019).

Therefore, EFSA should have requested a subchronic feeding study, but failed to do so.

Further, the material used in the feeding study was not representative of the product that would be consumed since the application of the complementary herbicide was not in accordance with current agricultural practices (see above)).

Conclusion

According to EU law, the renewal application for GE soybean A2704-12 should have been based on Regulation 503 /2013, this was however not the case.

Consequently, the decision of the EU Commission, to renew market authorisation, is not in line with EU law and must be revoked.

This situation also has legal consequences for all stacked soybean events derived from A2704-12 because they no longer have a sufficient legal basis for import and usage in food and feed.

References

EFSA (2007) Opinion of the Scientific Panel on Genetically Modified Organisms on an application (Reference EFSA-GMO-NL-2005-18) for the placing on the market of the glufosinate tolerant soybean A2704-12, for food and feed uses, import and processing under Regulation (EC) No 1829/2003 from Bayer CropScience, EFSA Journal 5(7):524, 1-22. https://efsa.onlinelibrary.wiley.com/doi/abs/10.2903/j.efsa.2007.524

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