| Appendix 3. | Literature search for annual monitoring on the general surveillance of Bayer GM cotton in the EU |
|---|---|

# APPENDIX 3

**LITERATURE SEARCH TO SUPPORT GENERAL SURVEILLANCE OF 2019/2020 ANNUAL POST MARKET ENVIRONMENTAL MONITORING REPORTS OF BAYER GM COTTON PRODUCTS**

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# SUMMARY

This literature search was conducted to support general surveillance of 2019/2020 annual post market environmental monitoring reports in accordance with the 2019 EFSA explanatory note on literature searching conducted in the context of GMO applications (EFSA, 2019). It addresses the review question "Do Bayer GM cotton products, derived food/feed products and their respective introduced traits have adverse effects on human and animal health and the environment?".

In accordance with the 2019 EFSA Explanatory note on literature searching conducted in the context of GMO applications (EFSA, 2019), eligibility/inclusion criteria to establish the relevance of retrieved publications was determined. Two electronic bibliographic databases (SciSearch and CABA databases) were selected for the literature search. Search strategies were developed together with an information specialist to perform the searches. In addition, literature searches were conducted in internet pages of relevant key organisations for Bayer GM cotton products.

The literature search covered the time span 2019 – 2020 and retrieved 111 and 97 hits in SciSearch and CABA databases, respectively, and a total of 60 records in the internet pages of the relevant key organisations. From these, 2 publications were identified as relevant. These publications did not have any implication on the risk assessment, because no new hazard, modified exposure, or new scientific uncertainty is reported.

The comprehensive literature search found no new information that would invalidate the conclusions of the risk assessment for Bayer GM cotton products.

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# 1. INTRODUCTION

As part of the general surveillance requirements for Bayer GM cotton products authorised in the European Union (EU) market under regulation (EC) No 1829/2003, Bayer Agriculture BV[1] has actively monitored the cotton products by conducting quarterly literature searches covering the time span between June 2019 and May 2020.

The results of the literature search that were analysed in detail according to the relevance for the risk assessment of the Bayer GM cotton products are presented here.

The completed form of EFSA Appendix E completeness checklist (EFSA, 2019) is provided as an attachment to this report.

# 2. FORMULATING THE REVIEW QUESTION AND CLARIFYING ITS PURPOSE

This literature search has been conducted to address the review question "Do Bayer GM cotton products, derived food/feed products and respective introduced traits have adverse effects on human and animal health and the environment?"

The purpose for undertaking this literature search is to support general surveillance of 2019/2020 annual post market environmental monitoring (PMEM) reports in accordance with the 2019 EFSA explanatory note on literature searching conducted in the context of GMO applications (EFSA, 2019).

Key elements used for the review question are humans, animals, and/or the environment (= population), Bayer GM cotton products, derived food/feed products and respective introduced traits (= intervention/exposure), conventional counterpart or non-GM cotton (= comparator), and adverse effect on human and animal health, and the environment (= outcomes). Accordingly, the eligibility criteria for assessing the relevance of publications for inclusion in the literature review are provided in **Table 1** .

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[1] Hereafter, referenced as Bayer

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**Table 1. Eligibility/inclusion criteria to establish the relevance of publications**

| Key elements | Criteria |
|---|---|
| Population | Humans, animals and the environment (taking into account the scope of the applications) *i.e.* authorisation for all uses as any other cotton but excluding the cultivation of Bayer GM cotton products are addressed as general protection goals. |
| Intervention/exposure | Bayer GM cotton products derived food/feed products and corresponding introduced traits addressed in the publication are identical or similar to those under scientific review by the EFSA. |
| Comparator | In case of a comparative study that uses the GM plant material as test material, eligible publications must report a non-GM cotton as a comparator. |
| Outcomes | Adverse effects on human and animal health and the environment are addressed (taking into consideration the scope of the applications). |
| **Additional key elements** | |
| Information/ data requirements, including source of publications data | The publication potentially contributes to the knowledge of the risk assessment of Bayer GM cotton product intended for all uses as any other cotton but excluding cultivation. |
| | Original/primary data are presented in the publication. |

# 3. SEARCHING FOR/ IDENTIFYING RELEVANT PUBLICATIONS

In accordance with the 2010 EFSA Guidance on application of systematic review methodology to food and feed safety assessments to support decision making (EFSA, 2010) and the 2019 EFSA Explanatory note on literature searching conducted in the context of GMO applications (EFSA, 2019), identification of bibliographic sources and development of search strategies was developed together with an information specialist who subsequently performed the literature search. The approach used to develop the search strategy follows a lumping method and includes a wide range of free-text terms and where available, controlled vocabulary that defines search terms.

## 3.1. Sources of scientific literature

### 3.1.1. Electronic bibliographic databases

Bayer selects the SciSearch (Science Citation Index)[2] and the CABA[3] (CAB Abstracts®)[4] databases to perform the literature search based on the coverage and relevance of the journals included in these databases. The literature search was conducted using the STN® database catalogue[5].

The SciSearch, produced by from Clarivate Analytics (UK) Limited, includes over 45 million records in Science and technology published since 1974. It includes literatures captured under Science Citation Index Expanded™, a largest multidisciplinary scientific database and an international index covering all scientific topics. It contains also all the records published from the Current Contents series of publications as well as bibliographic information and cited references from over 5 600 scientific, technical and medical journals. In addition, "*Records from January 1991 on include abstracts, author keywords, and KeyWords Plus®. Bibliographic information, authors, cited references, and KeyWords Plus® are searchable*"[3]. The database is updated on a weekly basis.

The CABA, produced by CAB international (UK), includes over 8.9 million records in agriculture and life sciences published since 1973. The database "*covers worldwide literature from all areas of agriculture and related sciences including biotechnology, forestry, and veterinary medicine. Sources for CABA include journals, books, reports, published theses, conference proceedings, and patents. Bibliographic information, indexing terms, abstracts, and CAS Registry Numbers are searchable. An online thesaurus is available for the Con-trolled Term (/CT), the Geographic term (/GT), and the Organism (/ORGN) fields*". The database is updated on a weekly basis.

All journals included in the two databases must go through a verification process and as a minimum requirement, non-English language journals must include English-language bibliographic information (title, abstract, keywords) and be peer-reviewed[5,6]. In general,

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[2] SciSearch: http://www.stn-international.de/sites/default/files/STN/summary-sheets/SCISEARCH.pdf- Accessed on 02 September 2020

[3] CABA: http://www.stn-international.de/sites/default/files/STN/summary-sheets/CABA.pdf– Accessed on 02 September 2020

[4] CAB Abstracts®: https://www.cabi.org/publishing-products/online-information-resources/cab-abstracts/ - Accessed on 14 July 2020

[5] STN®: http://www.stn-international.de/stnbrochures_gi.html - Accessed on 14 July 2020

[6] Web of Science group; https://clarivate.com/webofsciencegroup/solutions/webofscience-core-collection-editorial-selection-process/ - Accessed on 14 July 2020

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English is considered the universal language of science. For this reason, the journals most important to the international research community will publish either full text or a minimum of bibliographic information in English, which is especially true in the scientific domain of natural sciences. Full text in English is highly desirable if the journal intends to serve an international community of researchers. Therefore, it is expected that even if there is a relevant article for the food and feed safety of GM plants in a language different than English, the article will include title/abstract/keywords in English, which will guarantee the retrievability of these articles when using keywords and keyword combinations in English.

Based on the above, the selected databases are, to our knowledge, comprehensive, multidisciplinary, conservative sources for literature searching and offer the broadest coverage to retrieve a largest breadth of possible relevant publications. Therefore, additional search sources are not deemed necessary.

### 3.1.2. Internet (world-wide-web) pages of relevant key organisations

In accordance with the 2019 Explanatory note on literature searching for GMO applications (EFSA, 2019), the search in electronic bibliographic databases has been complemented with internet search in webpages of relevant key organisations involved in the risk assessment of GM plants.

Of the 14 key organisations cited in the 2019 Explanatory note on literature searching for GMO applications (EFSA, 2019), eleven[7] are involved in risk assessment of Bayer GM cotton products. The remaining three (CIBIOGEM, Environment and Climate Change Canada and OECD) are not involved in GM risk assessment. Therefore, the internet search focused on the eleven key organisations relevant for Bayer GM cotton products.

## 3.2. Search strategy (electronic databases)

### 3.2.1. Search terms and search strings

The intervention/exposure key elements were defined and translated into search terms. These search terms were identified following the below listed approaches in line with the 2019 EFSA Explanatory note on literature searching conducted in the context of GMO applications (EFSA, 2019):

- assessing words in reference publications,
- assessing subject indexing terms,
- searching for synonyms and related terms and
- consulting experts and stakeholders.

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[7] Internet pages of the relevant key organisations for Bayer GM cotton products:
US EPA (https://www.epa.gov/environmental-topics/science-topics) - Accessed on 14 July 2020;
USDA (https://www.usda.gov/media) - Accessed on 14 July 2020;
US FDA (https://www.fda.gov/) - Accessed on 14 July 2020;
CFIA (http://www.inspection.gc.ca/eng/1297964599443/1297965645317) - Accessed on 14 July 2020;
Health Canada (https://www.canada.ca/en/health-canada.html) - Accessed on 14 July 2020;
FSANZ (http://www.foodstandards.gov.au/Pages/default.aspx) - Accessed on 14 July 2020;
CTNBio (http://ctnbio.mctic.gov.br/) - Accessed on 14 July 2020;
CONABIA (https://www.argentina.gob.ar/) - Accessed on 14 July 2020;
Japan MAFF (http://www.maff.go.jp/e/) - Accessed on 14 July 2020.
OGTR (http://ogtr.gov.au/internet/ogtr/publishing.nsf/Content/home-1) - Accessed on 14 July 2020.
GEAC (http://www.geacindia.gov.in/approved-products.aspx) - Accessed on 14 July 2020.

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Following the aforementioned approaches, possible synonyms, related terms, abbreviations including acronyms and truncations, old and new as well as lay and scientific terminologies, brand and generic names, and spelling variants including common typos of the search terms were considered. Where applicable, the search was also adapted to controlled vocabulary (subject indexing). The search terms were designed to give an excellent coverage and retrieve the broadest possible number of articles related to Bayer GM cotton products.

**Annex I** presents the translation of the intervention key elements into search terms. The search terms, the fields and the Boolean operators used to combine them were defined as shown in **Annex II**. The search strings were built following the STN® commands (Karlsruhe, 2007) to allow the literature search in the STN® database catalogue. The free-text search terms, controlled vocabulary and the search strings are updated upon identification of a new search term.

The search sets belonging to each key element as described in **Annex I** and **Annex** II were combined by 'OR' to retrieve all the identified publications excluding duplicates. The separate assessment of these search sets, including those yielding only a small number of publications, was considered not necessary as this would duplicate the literature screening process and alter the consistency and comprehensiveness used in the literature search strategies.

### 3.2.2.  Limits applied

An advanced literature search was conducted using the web-based STN® database catalogue for both the selected electronic databases (*see* section 3.1.1). STN® enables searching in each electronic database by making use of pre-defined fields, set combinations based on Boolean operators or a combination of both[8]. In STN®, the results of the search from each database can be merged and duplicates can be removed by de-duplication.

The STN® literature search utilised "Basic Index" (None (or /BI)) field which utilises free-text search terms and enables comprehensive searching in different sections (*e.g.* title, abstract, keywords, supplementary terms, controlled terms) within a record (Karlsruhe, 2007; STN, 2018a, 2018b). Where applicable, controlled vocabulary (subject indexes) offered by CABA (controlled terms (CT)) were also included in the search strategy. Controlled vocabulary is assigned by subject specialists to CAB records to represent the content of the source documents. It allows users to use only one term to search for a concept rather than using lots of terms[9]. The most relevant, broad and controlled terms in the hierarchy of CAB Thesaurus terms and that were listed as preferred terms by CAB for a search query were selected and added to the search string, as shown in **Annex I** and **Annex** II.

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[8] STN index user guide: https://stn.products.fiz-karlsruhe.de/training-center/documentation/stn-index-user-guide - Accessed on 02 September  2020

[9] CAB Direct advanced searching of CAB abstracts: https://www.cabi.org/Uploads/CABI/publishing/training-materials/resources-by-interface/cab-direct-user-guides/advanced-searching-cab-abstracts.pdf - Accessed on14 July 2020

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### 3.2.3. Language

The search terms and their combinations are established in English. Therefore, the search is expected to result in a list of titles, abstracts or keywords written in English, covering also articles written in other languages with at least a title, abstract or keywords in English. Also, as technical terms on proteins names, event codes, trade names and Latin names are common in all languages, the search is expected to retrieve articles in all languages.

### 3.2.4. Time period

The literature searches covered the time span 1 May 2019 - 28 May 2020.

The literature search in the electronic databases was conducted on a quarterly basis considering the entry dates in the STN® database catalogue. **Table 2** shows the search dates and the time span of each search.

**Table 2. Description of literature search periods in the electronic databases**

| Date of the search[1] | Last database update dates | Search period |
|---|---|---|
| 04 October 2019 | SciSearch: 30 September 2019 | 01 May 2019 – 08 October 2019 |
| | CABA: 02 October 2019 | 01 May 2019 – 08 October 2019 |
| 03 February 2020 | SciSearch: 21 January 2020 | 04 Oct 2019 – 21 January 2020 |
| | CABA: 30 January 2020 | 04 Oct 2019 – 21 January 2020 |
| 01 June 2020 | SciSearch: 28 May 2020 | 22 January 2020– 28 May 2020 |
| | CABA: 29 May 2020 | 22 January 2020 – 28 May 2020 |

[1] The literature search in the electronic databases was conducted on a quarterly basis considering the entry dates in the STN® database catalogue. In addition, a final literature search was also conducted covering the full-time span of the season (01 May 2019 – 28 May 2020) on 17 August 2020. The search result presented in **Annex** II shows the final search covering the full-time span of the 2019-2020 season.

The literature search in the internet pages of the relevant key organisations was conducted on 21 July 2020 and 24 August 2020.

### 3.2.5. Reference publications

In accordance with the 2019 EFSA Explanatory note on literature searching conducted in the context of GMO applications (EFSA, 2019), reference publications that are relevant to answer the review question and are within the scope of the applications shall be used for identifying search terms as well as validating the search strategy. A list of reference publications, complying with the above criteria and used in validating the search strategy as part of the protocol development are provided in **Annex III**.

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### 3.3. Search strategy (relevant key organisations)

Information regarding the selection process for relevant records in the webpages are shown in **Annex IV**. For the selection of relevant publications, all records concerning GMO applications and approvals published in the webpage of each relevant key organisation were screened based on 'limits applied' as described in the **Annex IV**. Afterwards, all the records within the specified limits were assessed for their relevance to Bayer GM cotton products.

## 4. SELECTING PUBLICATIONS

Publications retrieved from the literature search were screened for their relevance first and then the selected ones were evaluated for their reliability through detailed assessments. Relevance to the search scope and scientific reliability were rigorously assessed by internal and external technical experts.

### 4.1. Eligibility screening process

The process of selecting relevant publications was undertaken in two stages:

- *Rapid assessment* for the relevance based on information in the title and abstract of the publications, to exclude publications that are obviously irrelevant.
- *Detailed assessment* of full-text document if required. Full-text documents were obtained for those publications not excluded in the rapid assessment and those documents were assessed in detail for their relevance to the review question. Publications not excluded by the detailed assessment were classified as relevant. At this stage, publications must comply with all the eligibility/inclusion criteria and meet all key elements of the review question.

Experts with a solid experience in GM plants risk assessment performed the screening process. Based on the available comprehensive weight of evidence, the experts assessed if the conclusions of the risk assessment are still valid.

### 4.2. Reviewers

All publications that were identified by the search described in **Section 3** have been screened by three different reviewers (one internal and two external experts) with solid experience in the risk assessment of GM plants.

In case of disagreements on eligibility for the inclusion of publications, the reviewers, discuss together. If uncertainty remains, the publication is *de facto* included for further consideration.

### 4.3. Classification of publications

Taking account of i) the review question, ii) the scope of the application, *i.e.* authorisation of Bayer GM cotton products for all uses as any other cotton but excluding cultivation in the EU and iii) the eligibility criteria to establish the relevance of retrieved publications, the list of retrieved hits was assessed to conclude whether a certain publication was considered relevant or not. When a publication was considered relevant, the category the publication belongs to is indicated. The following is a non-exhaustive list of categories publications may belong to:

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*Food/Feed safety assessment*

- Molecular characterisation
- Protein expression
- Crop composition
- Agronomic and phenotypic characteristics
- Toxicology - Animal feeding / *In vitro*
- Allergenicity of the protein or the whole food/feed
- Nutrition
- Protein / DNA/ RNA fate in digestive tract

*Environmental safety assessment*

- Spillage and consequences thereof

It should be noted that the selection criteria are well defined and reassessed annually.

### 4.4. Quality appraisal of the relevant publications

The relevant publications, if identified, are appraised in terms of reliability in accordance with the 2019 EFSA Explanatory note on literature searching conducted in the context of GMO applications (EFSA, 2019) by at least two individuals with technical expertise on the topic. In cases of disagreements, the evaluators discuss together and collectively determine the reliability of the publication. For the list of reliability categories, *see* **Annex V**.

## 5. SUMMARISING AND REPORTING THE DATA, AND CONSIDERING THE IMPLICATIONS OF THE FINDINGS

### 5.1. Search outcomes

#### 5.1.1. Outcomes of literature search (electronic databases)

The literature searches identified 111 and 97 hits in SciSearch and CABA databases, respectively (*see* **Annex II**). After de-duplication, the total number resulted in 162 hits.

#### 5.1.2. Outcomes of literature search (relevant key organisations)

The literature search in the internet pages of the eleven relevant key organisations retrieved a total of 60 records. The links to the results of the literature search and the summary of the retrieved data are shown in **Annex IV**.

### 5.2. Results of the publication selection process

#### 5.2.1. Results of the publication selection process (electronic databases)

The results of the publication selection process for the retrieved hits from the electronic databases are provided in **Annex V**. Two relevant publications were retrieved after detailed assessment of the full text documents. For bibliographic details regarding these publications in .RIS format, *see* **Annex VI**. For the full-text documents of the relevant publications, *see* the references folder within the literature searching folder.

### 5.2.2. Results of the publication selection process (relevant key organisations)

The results of the publication selection process for the retrieved records from the relevant key organisations are provided in **Annex IV**. None of the retrieved documents needed further assessment.

### 5.3. Implications of the retrieved relevant publications for the risk assessment

The comprehensive literature search relevant to the food, feed, and environmental safety of Bayer GM cotton products found no new information that would invalidate the conclusions of the risk assessment for Bayer GM cotton products.

The relevant publications as well as their reliability and implications for the risk assessment are provided in **Annex V.**

## 6. CONCLUSION

Taking into consideration all the above, Bayer confirms that this literature search, conducted to support the general surveillance in the context of 2019/2020 annual PMEM for Bayer GM cotton products, in accordance with the 2019 EFSA explanatory note on literature searching conducted in the context of GMO applications (EFSA, 2019), identified no relevant publications that would invalidate the initial conclusions of the Bayer GM cotton products risk assessment. Therefore, the conclusions of the risk assessment as presented in the initial applications of the Bayer GM cotton products remain unchanged.

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# REFERENCES

*References highlighted in grey are EFSA publications. Therefore, their pdfs are not provided.*

EFSA, 2010. Application of systematic review methodology to food and feed safety assessments to support decision making The EFSA Journal, 1637, 1-90.

EFSA, 2019. Explanatory note on literature searching conducted in the context of GMO applications for (renewed) market authorisation and annual post-market environmental monitoring reports on GMOs authorised in the EU market - Note on literature searching to GMO risk assessment guidance. EFSA journal, 2019:EN-1614, 1-62.

Karlsruhe F 2007. Command Summary Chart for bibliographic and full-text databases. 1-26.

STN 2018a. CABA. 1-12.

STN 2018b. SciSearch - Science Citation Index. 1-8.

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# Annex I. Translation of intervention/exposure key elements into search terms for Bayer GM COTTON products literature search in STN® database catalogue

## 1. Free-text search terms for Bayer GM Cotton products

| Key elements | Search terms | Synonyms, related terms, abbreviations/ acronyms/ truncations, lay/ scientific terms, brand/ generic names and spelling variants/ typos (adapted for performing search in STN® database catalogue) |
|---|---|---|
| Event names | MON 15985 or MON-15985-7<br><br>MON 88913 or MON-88913-8 | MON!15985? OR MON 15985? OR MON15985? OR<br><br>MON!88913? OR MON 88913? OR MON88913? |
| Trade name | Genuity® Bollgard II® cotton<br><br>Genuity® Roundup Ready® Flex cotton | BOLLGARD II? OR BOLLGARD!II? OR BOLLGARDII? OR BOLLGARD 2? OR BOLLGARD!2? OR BOLLGARD2? OR BG II OR BGII OR BG!II OR BG 2 OR BG2 OR BG!2<br><br>ROUNDUPREADY? OR ROUND!UP!READY? OR ROUND!UP READY? OR ROUNDUP READY? OR ROUND UP READY? OR RRFLEX OR RR FLEX OR RR!FLEX |
| Newly expressed proteins | CP4 EPSPS<br><br>Cry1Ac<br><br>Cry2Ab2 | CP4EPSPS? OR CP4 EPSPS? OR 5(W)(ENOLPYRUVYLSHIKIMATE OR ENOL PYRUVYL SHIKIMATE OR ENOLPYRUVYL SHIKIMATE OR ENOL PYRUVYLSHIKIMATE OR ENOL!PYRUVYL! SHIKIMATE!)(W)3 PHOSPHATE SYNTHASE<br><br>CRY1AC OR CRY1 AC OR CRY 1 AC OR CRY 1AC OR CRYIAC OR CRYI AC OR CRY I AC OR CRY IAC<br><br>CRY2AB? OR CRY2 AB? OR CRY 2 AB? OR CRY 2AB? OR CRYIIAB? OR CRYII AB? OR CRY II AB? OR CRY IIAB? |
| Intended traits: Herbicide tolerance traits | Glyphosate/roundup tolerance | (TOLERAN? OR RESISTAN? OR PROTEC?)(5A)(GL!PHOSATE OR GL!FOSATE OR ROUNDUP? OR ROUND UP?) |
| Intended traits: Insect protection traits | *Bt* Cotton / *Bacillus thuringiensis,* Cotton providing lepidopteran protection against cotton bollworm or cotton budworm | (TOLERAN? OR RESISTAN? OR PROTEC?)(5A)(LEPIDOPTERA? OR BOLLWORM? OR BOLL WORM? OR BUDWORM? OR BUD WORM?) |
| Crop name | Cotton, *Gossypium* | COTTON OR GOSSYPIUM |

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| | GMO general terms | Genetically modified organism (GMO, GM); Living modified organism (LMO); biotechnology-derived organism (biotech-derived); Genetic engineering (GE); transgenesis (transgene); genetic transformation; genetic manipulation; genetic improvement. | GMO? OR LMO? OR GM OR GE OR TRANSGEN? OR ((GENETIC? OR LIVING OR BIOTECH?)(5A)(MODIF? OR TRANSFORM? OR MANIPULAT? OR IMPROV? OR ENGINEER? OR DERIV?)) |
|---|---|---|---|

## 2. Controlled vocabulary, if applicable. Bayer GM Cotton products

| Key elements | Search terms | Controlled terms offered by CABA (adapted for performing search in STN® database catalogue) |
|---|---|---|
| Event name | Not applicable | |
| Trade name | Not applicable | |
| Newly expressed proteins | Not applicable | |
| Intended traits: Insect protection and herbicide tolerance traits | *Bt* Cotton / *Bacillus thuringiensis,* Cotton providing lepidopteran protection against cotton bollworm cotton budworm<br><br>Glyphosate/ roundup tolerance, | (WEED CONTROL+UF,NT/CT OR INSECT CONTROL+UF,NT/CT) AND (LEPIDOPTERA+UF,NT2/CT,ORGN OR GLYPHOSATE+UF,NT/CT) |
| Crop name | Cotton, *Gossypium* | COTTON+UF,NT/CT,ORGN |
| GMO general terms | Genetically modified organism (GMO, GM); Living modified organism (LMO); biotechnology-derived organism (biotech-derived); Genetic engineering (GE); transgenesis (transgene); genetic transformation; genetic manipulation; genetic improvement | GENETIC ENGINEERING+UF,NT/CT OR GENETIC TRANSFORMATION+UF,NT/CT OR GENETICALLY ENGINEERED FOODS+UF,NT/CT OR GENETICALLY ENGINEERED ORGANISMS+UF,NT/CT OR FOOD BIOTECHNOLOGY+UF,NT/CT |

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# Annex II. The search string used for Bayer GM cotton products literature search in SciSearch and CABA databases using STN® database catalogue, and outcomes of the search (2019-2020)

The literature search covered the time span June 2019 - May 2020. The literature search in the electronic databases was conducted on a quarterly basis considering the entry dates in the STN® database catalogue. In addition, a final literature search was conducted covering the full-time span of the season. The search result presented below shows the final search conducted covering the full-time span of the 2019-2020 season.

## Translation of query terms into STN search language:

```
This alert run covers the time range from 20190501 until 20200528
This alert will only include literature published from 2019 onwards


L1              QUE SPE=ON  ABB=ON  PLU=ON  MON!15985? OR MON 15985? OR
                MON15985? OR MON!88913? OR MON 88913? OR MON88913?
L2              QUE SPE=ON  ABB=ON  PLU=ON  BOLLGARD II? OR BOLLGARD!II? OR
                BOLLGARDII? OR BOLLGARD 2? OR BOLLGARD!2? OR BOLLGARD2? OR
BG
                II OR BGII OR BG!II OR BG 2 OR BG2 OR BG!2
L3                     QUE SPE=ON  ABB=ON  PLU=ON  ROUNDUPREADY? OR
ROUND!UP!READY?
                OR ROUND!UP READY? OR ROUNDUP READY? OR ROUND UP READY? OR
                RRFLEX OR RR FLEX OR RR!FLEX
L4              QUE SPE=ON  ABB=ON  PLU=ON  COTTON OR GOSSYPIUM
L5              QUE SPE=ON  ABB=ON  PLU=ON  CP4EPSPS? OR CP4 EPSPS? OR
                5(W)(ENOLPYRUVYLSHIKIMATE OR ENOL PYRUVYL SHIKIMATE OR
                ENOLPYRUVYL  SHIKIMATE  OR  ENOL  PYRUVYLSHIKIMATE  OR
ENOL!PYRUVYL!
                SHIKIMATE!)(W)3 PHOSPHATE SYNTHASE
L6               QUE SPE=ON  ABB=ON  PLU=ON  CRY1AC OR CRY1 AC OR CRY 1 AC
OR
                CRY 1AC OR CRYIAC OR CRYI AC OR CRY I AC OR CRY IAC
L7               QUE SPE=ON  ABB=ON  PLU=ON  CRY2AB? OR CRY2 AB? OR CRY 2
AB?
                OR CRY 2AB? OR CRYIIAB? OR CRYII AB? OR CRY II AB? OR CRY
                IIAB?
L8              QUE SPE=ON  ABB=ON  PLU=ON  GMO? OR LMO? OR GM OR GE OR
                TRANSGEN? OR ((GENETIC? OR LIVING OR BIOTECH?)(5A)(MODIF?
OR
                TRANSFORM?  OR  MANIPULAT?  OR  IMPROV?  OR  ENGINEER?  OR
DERIV?))
L9                  QUE SPE=ON  ABB=ON  PLU=ON  (TOLERAN? OR RESISTAN? OR
PROTEC?)(
                5A)(GL!PHOSATE  OR  GL!FOSATE  OR  ROUND!UP?  OR  ROUNDUP?  OR
ROUND
                UP?)
L10             QUE SPE=ON  ABB=ON  PLU=ON  (TOLERAN? OR RESISTAN? OR
PROTEC?)(
                5A)(LEPIDOPTERA? OR BOLLWORM? OR BOLL WORM? OR BUDWORM? OR
BUD
                WORM?)
L11             QUE SPE=ON  ABB=ON  PLU=ON  COTTON+UF,NT/CT,ORGN
L12             QUE SPE=ON  ABB=ON  PLU=ON  GENETIC ENGINEERING+UF,NT/CT OR
```

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```
                GENETIC TRANSFORMATION+UF,NT/CT OR GENETICALLY ENGINEERED
                FOODS+UF,NT/CT OR GENETICALLY ENGINEERED ORGANISMS+UF,NT/CT
OR
                FOOD BIOTECHNOLOGY+UF,NT/CT
L13             QUE SPE=ON  ABB=ON  PLU=ON  (WEED CONTROL+UF,NT/CT OR
INSECT
                CONTROL+UF,NT/CT)    AND    (LEPIDOPTERA+UF,NT2/CT,ORGN    OR
GLYPHOSATE
                +UF,NT/CT)
```

## Search in SciSearch Database:

```
FILE 'SCISEARCH' ENTERED AT 15:01:28 ON 17 AUG 2020
CHARGED TO COST=PAUSE
L14              1 SEA SPE=ON  ABB=ON  PLU=ON  L1 AND ED>=20190501 AND
ED<=2020052
                8 AND PY>=2019
L15             57 SEA SPE=ON  ABB=ON  PLU=ON  (L2 OR L3) AND ED>=20190501 AND
                ED<=20200528 AND PY>=2019
L16           4193 SEA SPE=ON  ABB=ON  PLU=ON  L4 AND ED>=20190501 AND
ED<=2020052
                8 AND PY>=2019
L17              7 SEA SPE=ON  ABB=ON  PLU=ON  L15 AND L16
L18             49 SEA SPE=ON  ABB=ON  PLU=ON  L5 AND ED>=20190501 AND
ED<=2020052
                8 AND PY>=2019
L19            113 SEA SPE=ON  ABB=ON  PLU=ON  (L6 OR L7) AND ED>=20190501 AND
                ED<=20200528 AND PY>=2019
L20            161 SEA SPE=ON  ABB=ON  PLU=ON  L18 OR L19
L21          24637 SEA SPE=ON  ABB=ON  PLU=ON  L8 AND ED>=20190501 AND
ED<=2020052
                8 AND PY>=2019
L22             97 SEA SPE=ON  ABB=ON  PLU=ON  L20 AND (L21 OR L16)
L23            221 SEA SPE=ON  ABB=ON  PLU=ON  L9 AND ED>=20190501 AND
ED<=2020052
                8 AND PY>=2019
L24             57 SEA SPE=ON  ABB=ON  PLU=ON  L10 AND ED>=20190501 AND
ED<=202005
                28 AND PY>=2019
L25            278 SEA SPE=ON  ABB=ON  PLU=ON  L23 OR L24
L26             23 SEA SPE=ON  ABB=ON  PLU=ON  L25 AND L21 AND L16
L27            111 SEA SPE=ON  ABB=ON  PLU=ON  L14 OR L17 OR L22 OR L26
```

## Search in CABA Database:

```
     FILE 'CABA' ENTERED AT 15:01:49 ON 17 AUG 2020
CHARGED TO COST=PAUSE
L28              0 SEA SPE=ON  ABB=ON  PLU=ON  L1 AND ED>=20190501 AND
ED<=2020052
                8 AND PY>=2019
L29             39 SEA SPE=ON  ABB=ON  PLU=ON  (L2 OR L3) AND ED>=20190501 AND
                ED<=20200528 AND PY>=2019
L30           1792 SEA SPE=ON  ABB=ON  PLU=ON  L4 AND ED>=20190501 AND
ED<=2020052
                8 AND PY>=2019
L31           1254 SEA SPE=ON  ABB=ON  PLU=ON  L11 AND ED>=20190501 AND
ED<=202005
                28 AND PY>=2019
L32           1792 SEA SPE=ON  ABB=ON  PLU=ON  L30 OR L31
```

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```
L33            9 SEA SPE=ON  ABB=ON  PLU=ON  L29 AND L32
L34           39 SEA SPE=ON   ABB=ON   PLU=ON   L5 AND ED>=20190501 AND
ED<=2020052
              8 AND PY>=2019
L35           79 SEA SPE=ON  ABB=ON  PLU=ON  (L6 OR L7) AND ED>=20190501 AND
               ED<=20200528 AND PY>=2019
L36          115 SEA SPE=ON  ABB=ON  PLU=ON  L34 OR L35
L37         7008 SEA SPE=ON  ABB=ON  PLU=ON   L8 AND ED>=20190501 AND
ED<=2020052
              8 AND PY>=2019
L38         3384 SEA SPE=ON   ABB=ON   PLU=ON   L12 AND ED>=20190501 AND
ED<=202005
              28 AND PY>=2019
L39         7021 SEA SPE=ON  ABB=ON  PLU=ON  L37 OR L38
L40           84 SEA SPE=ON  ABB=ON  PLU=ON  L36 AND (L32 OR L39)
L41          126 SEA SPE=ON   ABB=ON   PLU=ON   L9 AND ED>=20190501 AND
ED<=2020052
              8 AND PY>=2019
L42           56 SEA SPE=ON   ABB=ON   PLU=ON   L10 AND ED>=20190501 AND
ED<=202005
              28 AND PY>=2019
L43          176 SEA SPE=ON   ABB=ON   PLU=ON   L13 AND ED>=20190501 AND
ED<=202005
              28 AND PY>=2019
L44          326 SEA SPE=ON  ABB=ON  PLU=ON  L41 OR L42 OR L43
L45           21 SEA SPE=ON  ABB=ON  PLU=ON  L44 AND L39 AND L32
L46           97 SEA SPE=ON  ABB=ON  PLU=ON  L28 OR L33 OR L40 OR L45
```

## Deduplication of Hit-sets from both sources:

```
FILE 'CABA, SCISEARCH' ENTERED AT 15:02:28 ON 17 AUG 2020
CHARGED TO COST=PAUSE
L47          162 DUP REM L46 L27 (46 DUPLICATES REMOVED)
                   ANSWERS '1-96' FROM FILE CABA
                   ANSWERS '97-162' FROM FILE SCISEARCH
             D L47 1-162 AN TI


     FILE 'STNGUIDE' ENTERED AT 15:03:09 ON 17 AUG 2020
CHARGED TO COST=PAUSE


     FILE SCISEARCH

     FILE COVERS 1974 TO 10 Aug 2020 (20200810/ED)

     To bring you the most up-to-date SciSearch information,
     SciSearch SDIs now run on Mondays.

     FILE CABA
     FILE LAST UPDATED: 12 AUG 2020      <20200812/UP>
     FILE COVERS 1973 TO DATE

     <<< SIMULTANEOUS LEFT AND RIGHT TRUNCATION IS AVAILABLE IN
         THE BASIC INDEX (/BI), ABSTRACT (/AB), AND TITLE (/TI) FIELDS  >>>

     FILE STNGUIDE
     FILE CONTAINS CURRENT INFORMATION.
     LAST RELOADED: Aug 14, 2020 (20200814/UP).
```

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# Annex III. List of reference publications used in identifying search terms and in validating the literature search strategy for Bayer GM cotton products literature search

The list below includes reference publications used for each relevant key element, namely event name, trade name, newly expressed proteins and intended traits. For GMO general and crop name search terms, given the breadth of the terms and as they are used to focus the search to GM crops, reference publications were considered not applicable.

Dhanaraj AL, Willse AR and Kamath SP, 2019. Stability of expression of Cry1Ac and Cry2Ab2 proteins in Bollgard-II hybrids at different stages of crop growth in different genotypes across cropping seasons and multiple geographies. Transgenic Res, 28, 33-50.

Faldu GO, Patel HB, Vadodariya GD and Solanki BG, 2015. Response and Expression Pattern of Bt Toxin in Bollgard Cotton Hybrids with Respect to Crop Age under Different Environmental Conditions. Trends in Biosciences, 8, 1237-1242.

Gampala SS, Fast BJ, Richey KA, Gao Z, Hill R, Wulfkuhle B, Shan G, Bradfisch GA and Herman RA, 2017. Single-event transgene product levels predict levels in genetically modified breeding stacks. J Agric Food Chem, 65, 7885-7892.

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# Annex IV. Literature search in internet pages of relevant key organisations for Bayer GM cotton products covering time span 2019 – 2020

| Relevant key organisations | Link to the relevant information and summary of the retrieved records |
|---|---|
| US EPA | https://www.epa.gov/ingredients-used-pesticide-products/current-and-previously-registered-section-3-plant-incorporated – Accessed on 21 July 2020. The webpage dedicated to PIP registrations was checked.<br><br>*Date of the most recent website update at the time of the search*: 14 July 2020<br><br>*Limits applied*: The list of PIP active ingredients registered was sorted by 'Year Registered' and those registered starting from 2019 were assessed.<br><br>*Number of records retrieved matching the abovementioned criteria*: "1".<br><br>*Number of relevant records or full-text documents retrieved*: The retrieved record is not relevant to Bayer GM cotton products. |
| USDA | https://www.aphis.usda.gov/aphis/ourfocus/biotechnology/permits-notifications-petitions/petitions/petition-status - Accessed on 21 July 2020. The webpage dedicated to petitions for determination of nonregulated status was checked.<br><br>*Date of the most recent website update at the time of the search*: 17 July 2020<br><br>*Limits applied*: The list of the petitions was sorted by 'Effective Date' and those completed/ released starting from 01/01/2019 were assessed.<br><br>*Number of records retrieved matching the abovementioned criteria*: "2"<br><br>*Number of relevant records or full-text documents retrieved*: The retrieved records are not relevant to Bayer GM cotton products. |
| US FDA | https://www.accessdata.fda.gov/scripts/fdcc/?set=Biocon – Accessed on 21 July 2020. The webpage dedicated to biotechnology consultations on food from GE plant varieties was checked.<br><br>*Date of the most recent website update at the time of the search*: 11 October 2010<br><br>*Limits applied*: The list of the consultations starting from the 'FDA Letter Date' of January 01, 2019 was assessed.<br><br>*Number of records retrieved matching the abovementioned criteria*: "3".<br><br>*Number of relevant records or full-text documents retrieved*: The retrieved records are not relevant to Bayer GM cotton products. |

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| | |
|---|---|
| CFIA | https://www.inspection.gc.ca/industry-guidance/eng/1374161650885/1374161737236?gp=3&gc=25&ga=4#gdr_results - Accessed on 24 August 2020. The webpage dedicated to repository documents referring to plants with novel traits was checked.<br><br>*Date of the most recent website update at the time of the search*: not clear<br><br>*Limits applied*: The list of repository documents referring to plants with novel traits starting from 2019 was assessed.<br><br>*Number of records retrieved matching the abovementioned criteria*: "16".<br><br>*Number of relevant records or full-text documents retrieved*: The retrieved records are not relevant to Bayer GM cotton products |
| Health Canada | https://www.canada.ca/en/health-canada/services/food-nutrition/genetically-modified-foods-other-novel-foods/approved-products.html - Accessed on 21 July 2020. The webpage dedicated to approved products of genetically modified (GM) foods and other novel foods was checked.<br><br>*Date of the most recent website update at the time of the search*: 07 May 2020<br><br>*Limits applied*: The list of novel food decisions starting from the 'Decision Date (20YY/MM/DD)' of 2019/01/01 was assessed.<br><br>*Number of records retrieved matching the abovementioned criteria*: "3".<br><br>*Number of relevant records or full-text documents retrieved*: The retrieved records are not relevant to Bayer GM cotton products. |
| FSANZ | http://www.foodstandards.gov.au/consumer/gmfood/applications/Pages/default.aspx - Accessed on 24 August 2020. The webpage dedicated to current GM applications and approvals was checked.<br><br>*Date of the most recent website update at the time of the search*: August 2019<br><br>*Limits applied*: The list for GM applications and approvals with 'Status' approved or under assessment starting from 2019 was assessed.<br><br>*Number of records retrieved matching the abovementioned criteria*: "1".<br><br>*Number of relevant records or full-text documents retrieved*: The retrieved records are not relevant to Bayer GM cotton products. |
| CTNBio | http://ctnbio.mctic.gov.br/liberacao-comercial#/liberacao-comercial/consultar-processo – Accessed on 24 August 2020. The webpage dedicated to commercial releases (= Liberações Comerciais) was checked.<br><br>*Date of the most recent website update at the time of the search*: 21 August 2020<br><br>*Limits applied*: The list of commercial releases for plants (= plantas) starting from 2019 was assessed.<br><br>*Number of records retrieved matching the abovementioned criteria*: "3".<br><br>*Number of relevant records or full-text documents retrieved*: The retrieved records are not relevant to Bayer GM cotton products. |

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| | |
|---|---|
| CONABIA | https://www.argentina.gob.ar/agroindustria/alimentos-y-bioeconomia/ogm-comerciales – Accessed on 21 July 2020. The webpage of the national advisory commission on agricultural biotechnology (= Comisión Nacional Asesora de Biotecnología Agropecuaria) was checked.<br><br>*Date of the most recent website update at the time of the search*: Not available<br><br>*Limits applied*: The list of events with commercial resolución starting from 2019 were checked.<br><br>*Number of records retrieved matching the abovementioned criteria*: "9".<br><br>*Number of relevant records or full-text documents retrieved*: The retrieved records are not relevant to Bayer GM cotton products. |
| MAFF | https://www.maff.go.jp/j/syouan/nouan/carta/torikumi/attach/pdf/index-217.pdf - Accessed on 20 August 2020. The weblink dedicated to list of approved genetically modified agricultural crops was checked.<br><br>*Date of the most recent website update at the time of the search*: 17 June 2020<br><br>*Limits applied*: The list of GM agricultural crops with approval date ('承認日') starting from January 01, 2019 was assessed.<br><br>*Number of records retrieved matching the abovementioned criteria*: "13".<br><br>*Number of relevant records or full-text documents retrieved*: The retrieved records are not relevant to Bayer GM cotton products. |
| GEAC | http://www.geacindia.gov.in/approved-products.aspx - Accessed on 21 July 2020. The weblink of Agriculture applications - Commercially Approved, was checked.<br><br>*Date of the most recent website update at the time of the search*: Not available.<br><br>*Limits applied*: The list of 'commercially released *Bt* cotton hybrids/varieties' starting from 2019 was assessed.<br><br>*Number of records retrieved matching the abovementioned criteria*: "0".<br><br>*Number of relevant records or full-text documents retrieved*: No records were retrieved. |
| OGTR | http://ogtr.gov.au/internet/ogtr/publishing.nsf/Content/ir-1 - Accessed on 21 July 2020. The webpage dedicated to list of GMOs released into the environment was checked.<br><br>*Date of the most recent website update at the time of the search*: Not clear (several dates mentioned)<br><br>*Limits applied*: Table of applications and authorisations for Dealings involving Intentional Release (DIR) into the environment starting from 'Issue Date' of 01 01 2019 was assessed.<br><br>*Number of records retrieved matching the abovementioned criteria*: "9".<br><br>*Number of relevant records or full-text documents retrieved*: The retrieved records are not relevant to Bayer GM cotton products |

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# Annex V. Results of the publication selection process for Bayer GM cotton products literature search in SciSearch and CABA databases using STN® database catalogue

**Table 1. Results of the publication selection process.**

| Review question captured in the search | Number of publications |
|---|:---:|
| Publications identified after searches of the scientific literature in SciSearch and CABA databases (following de-duplication) | 162 |
| Publications excluded after rapid assessment for relevance | 155 |
| Publications screened using full-text documents | 7 |
| Publications excluded after detailed assessment for relevance | 5 |
| Unobtainable publications | 0 |
| Unclear publications | 0 |
| Publications considered relevant | 2 |

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**Table 2.** List of all relevant publications for Bayer GM cotton products retrieved after detailed assessment of full-text documents for relevance: ordered by category of information.

| Products | Study (author(s) and year) | Title | Source |
|---|---|---|---|
| **Food/Feed safety assessment** | | | |
| Protein expression | | | |
| MON 15985 | (Bahar *et al.*, 2019) | Survival of Helicoverpa armigera larvae on and *Bt* toxin expression in various parts of transgenic *Bt* cotton (Bollgard II) plants | Entomologia Experimentalis et Aplicata |
| Nutrition/Toxicology | | | |
| MON 15985, MON 88913 | (Shahid *et al.*, 2019) | Risk Assessment of Transgenic Cotton Harboring *Bt* and Glyphosate Resistance Gene on Fish (*Labeo Rohita*) | Journal of Animal and Plant Sciences |

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**Table 3**.  **List of publications excluded from the risk assessment after detailed assessment of full-text documents, with the reason(s) for exclusion**

| Study authors | Year | Title | Source | Reasons for exclusion based on the eligibility/ inclusion criteria |
|---|---|---|---|---|
| Shahid *et al.* | 2020 | Assessing the fate of recombinant plant DNA in rabbit's tissues fed genetically modified cotton | Journal of Animal Physiology and Animal Nutrition | The hybrid used to conduct the study is not Bayer GM cotton product |
| Mei *et al.* | 2019 | Characterizations of male sterility in a glyphosate-tolerant upland cotton (Gossypium hirsutum L.) induced by glyphosate and its assessments on safety utilization | Industrial Crops and Products | The hybrid used to conduct the study is notBayer GM cotton product |
| Mortazavi *et al.* | 2019 | Field evaluation of yield and lepidopteran pest resistance in three transgenic cotton lines | Journal of Plant Protection | The hybrid used to conduct the study is not Bayer GM cotton product |
| Chen *et al.* | 2019 | Nitrogen deficit decreases seed Cry1Ac endotoxin expression in *Bt* transgenic cotton | Plant Physiology and Biochemistry | The hybrid used to conduct the study is not Bayer GM cotton product |
| Shakeel *et al* | 2019 | Resistance status of Helicoverpa armigera against *Bt* cotton in Pakistan | Transgenic Research | The hybrid used to conduct the study is not Bayer GM cotton product |

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**Table 4**. **Report of the reliability and implications for the risk assessment of the relevant publication retrieved after detailed assessment of full-text document for relevance.**

| Study author(s) and year | Reliability appraisal[1] | Implications for the risk assessment[2] |
|---|---|---|
| **Food/Feed Safety assessment** | | |
| Protein expression | | |
| (Bahar *et al.*, 2019) | Low | None, because no new hazards, modified exposure, or new scientific uncertainties are reported |
| Nutrition/Toxicology | | |
| (Shahid *et al.*, 2019) | Moderate | None, because no new hazards, modified exposure, or new scientific uncertainties are reported |

[1]  **High** (use as key study); **Moderate** because the study reported is subject to some limitations (useable as key study depending on the limitations of the study); **Low** because the study reported is subject to several limitations (limited use or not useful; generally not to be used as key study, but depending on the limitations of the study, it may be useful in weight of evidence approaches or as supporting information); **Not reliable** because the study reported does not comply with minimum reliability criteria carrying a high level of uncertainty (not useful); **Not assignable** because no or insufficient information is reported in the study (EFSA, 2019)

[2]  Identification of a new hazard, modified exposure, or new scientific uncertainty requiring further consideration in the risk assessment; **None**, because no new hazards, modified exposure, or new scientific uncertainties are reported; **None**, because the findings reported in the study are not reliable; Implications for risk assessment were previously considered by EFSA and/or its GMO Panel, and are therefore not addressed further here (EFSA, 2019).

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# REFERENCES

*References highlighted in grey are EFSA publications. Therefore, their pdfs are not provided.*

Bahar MH, Stanley J, Backhouse D, Mensah R, Del Socorro A and Gregg P, 2019. Survival of Helicoverpa armigera larvae on and Bt toxin expression in various parts of transgenic Bt cotton (Bollgard II) plants. Entomologia Experimentalis et Applicata, 167, 1-9.

EFSA, 2019. Explanatory note on literature searching conducted in the context of GMO applications for (renewed) market authorisation and annual post-market environmental monitoring reports on GMOs authorised in the EU market - Note on literature searching to GMO risk assessment guidance. EFSA journal, 2019:EN-1614, 1-62.

Shahid AA, Haider T, Samiullah TR, Ali MA, Bajwa KS, Rao AQ, Salisu IB and Husnain T, 2019. Risk Assessment of Transgenic Cotton Harboring Bt and Glyphosate Resistance Gene on Fish (*Labeo Rohita*). The Journal of Animal & Plant Sciences, 29(6), 1761-1769.

# Annex VI. List of relevant publications retrieved from SciSearch and CABA databases using STN® database catalogue (provided in .RIS format)

Annex VII.    TY  - JOUR

Annex VIII.   AU  - Bahar, Md.H.

Annex IX.     AU  - Stanley, J.

Annex X.      AU  - Backhouse, D.

Annex XI.     AU  - Mensah, R.

Annex XII.    AU  - Del Socorro, A.

Annex XIII.   AU  - Gregg, P.

Annex XIV.    PY  - 2019

Annex XV.     SP  - 1-9

Annex XVI.    ST  - Survival of Helicoverpa armigera larvae on and Bt toxin expression in various parts of transgenic Bt cotton (Bollgard II) plants

Annex XVII.   T2  - Entomologia Experimentalis et Applicata

Annex XVIII.  TI  - Survival of Helicoverpa armigera larvae on and Bt toxin expression in various parts of transgenic Bt cotton (Bollgard II) plants

Annex XIX.    VL  - 167

Annex XX.     ID  - 26

Annex XXI.    ER  -

Annex XXII.
Annex XXIII.  TY  - JOUR

Annex XXIV.   AU  - Shahid, A.A.

Annex XXV.    AU  - Haider, T.

Annex XXVI.   AU  - Samiullah, T.R.

Annex XXVII.  AU  - Ali, M.A.

Annex XXVIII.       AU  - Bajwa, K.S.

Annex XXIX.   AU  - Rao, A.Q.

Annex XXX.    AU  - Salisu, I.B.

Annex XXXI.   AU  - Husnain, T.

Annex XXXII.  PY  - 2019

Annex XXXIII.       SP  - 1761-1769

Annex XXXIV.        ST  - Risk Assessment of Transgenic Cotton Harboring Bt and Glyphosate Resistance Gene on Fish (*Labeo Rohita*)

Annex XXXV.         T2  - The Journal of Animal & Plant Sciences

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