

**Review of literature of DAS-44406-6, DAS-81419-2, and DAS-81419-2 ×
DAS-44406-6 soybean in the scope of the authorisations for food and
feed uses, import and processing
(2023update)**



PHI-R179-Y23

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1. Summary

An updated systematic search and review of peer-reviewed literature was conducted for DAS-44406-6, DAS-81419-2 and DAS-81419-2 × DAS-44406-6 soybean (hereafter collectively referred to as “authorised GM soybean”). This exercise was performed in line with the EFSA Guidance on conducting a systematic review (EFSA, 2010) and taking into account the explanatory note on literature searching (EFSA, 2019), with the following review question “Do the authorised GM soybean and derived food/feed products, or the intended traits (the newly expressed protein(s)), have adverse effects on human and animal health and the environment in the scope of the authorisation?”.

The current systematic search complements the search previously performed in 2022. Unless outlined below, all portions of the search were conducted according to the methodologies outlined in the previous search.

The outcome of this analysis showed that no publication relevant for the review question was identified during the selected time period. No safety concerns were identified for the authorised GM soybean by this literature search exercise.

2. Confirmation of the Suitability of the Search Strings

All portions of the search were conducted according to the methodologies outlined in the previous searches. It was confirmed that the search strategy utilized in the previous literature search report (2022) is still relevant and no updates were identified.

2.1. Outcome of literature searches

In May 2023, searches against electronic bibliographic databases and manual searches in view of screening of reference lists were performed. The search process is reported in line with EFSA guidance (EFSA, 2010 Appendix B4(2)) in Table 1.

Table 1. Documenting and reporting the search process

Resources	Date of search	Period searched*	Other restrictions	Number of records retrieved
Web of Science Core collection [§]	26 May 2023	1 Jan 2022-26 May 2023	None	105
CAB Abstracts [§]	26 May 2023	1 Jan 2022-26 May 2023	None	104
MEDLINE [§]	26 May 2023	1 Jan 2022-26 May 2023	None	68
Europe PMC [§]	26 May 2023	1 Jan 2022-26 May 2023	None	4
Screening reference lists	NA	-	NA	NA

[§]The search syntaxes used for electronic bibliographic databases are reported in Appendix 1.

* Period searched included an indexing date of 8 August 2022.

NA: Not applicable as no publications relevant for screening reference lists were identified.

The publications retrieved across all methods of searching (Web of Science Core collection, CAB Abstracts, MEDLINE, Europe PMC, and screening of reference lists) can be found in Appendix 3.

In the framework of the reference list screening exercise, no detailed risk assessments regarding the authorised GM soybean were retrieved that contained information on food and feed safety. Considering that no opinions were published within the selected time period no further screening was performed.

The publications grouped in the Endnote® library were deduplicated. Publications retrieved by the previous searches conducted in the frame of the 2022 annual monitoring report were also removed (see Appendix 3).

The results of the publication selection process are presented in Table 2.

Table 2. Results of the publication selection process, for the review question

Review question: “Do the authorised GM soybean and derived food/feed products, or the intended traits (the newly expressed protein(s)), have adverse effects on human and animal health and the environment in the scope of the authorisation?”	Number of records
Total number of publications retrieved after all searches of the scientific literature (excluding duplicates and publications retrieved by the previous searches conducted in the frame of the 2022 monitoring reports)	178
Number of publications excluded from the search results after rapid assessment for relevance based on title and abstract	176
Total number of full-text documents assessed in detail	2
Number of publications excluded from further consideration after detailed assessment for relevance based on full text	2
Total number of unobtainable/unclear publications	0
Total number of relevant publications	0

The 178 unique entries present in the Endnote database (Table 2) were manually screened for relevance to the review question by two independent reviewers using the *a priori* eligibility/inclusion criteria described in Appendix 2.

In the first stage of screening, entries were screened based on title/abstract. Records that were deemed to be irrelevant were not further retained. In cases where the record seemed relevant, or if the title/abstract did not contain sufficient information, the publication was progressed to the second stage and assessed for relevance at the level of the full text.

Publications assessed at full text level and found not to be relevant were not further assessed and a justification was provided. Records that are relevant were summarized and their potential to influence the initial risk assessment was evaluated in the format laid out by the Commission decision 2009/770/EC (EC, 2009).

In this literature search exercise, no peer-reviewed publications relevant to the risk assessment of DAS-44406-6, DAS-81419-2 or DAS-81419-2 × DAS-44406-6 soybean was identified (see Appendix 4, Table 4.1). Publications excluded after assessment of the full-text are presented in Table 4.2 in Appendix 4 and a reason for exclusion based on the eligibility/inclusion criteria is provided. No unclear publications were identified (see Appendix 4, Table 4.3).

3. Conclusion

No publications were identified as relevant for the molecular characterisation, food/feed and environmental safety of the authorised GM soybean within the scope of the authorisations for the defined time period. No safety concerns have been identified for the authorised GM soybean by this literature search exercise.

References

- EC, **2009**. Commission Decision 2009/770/EC of 13 October 2009 establishing standard reporting formats for presenting the monitoring results of the deliberate release into the environment of genetically modified organisms, as or in products, for the purpose of placing on the market, pursuant to Directive 2001/18/EC of the European Parliament and of the Council. Official Journal of the European Union 275, 9-27.
- EFSA, **2010**. Application of systematic review methodology to food and feed safety assessments to support decision making. EFSA Journal 8(6):1637. [90 pp.].
- 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. EFSA supporting publication 2019:EN-1614. [62 pp.].

Appendix 1. Detailed search syntaxes for the DAS-44406-6, DAS-81419-2 and DAS-81419-2 × DAS-44406-6 soybean

Web of Science Core collection

Set	Search query	Results
Event 44406 #1	TS=(DAS44406* OR DAS-44406 OR DAS-44406-6 OR DAS-444-circle-divide-6-6 OR DAS-444empty-set6-6 OR ((44406 OR Enlist*) AND (soy* OR soja* OR Glycine OR Dow OR Corteva OR herbicide*)))	80
Event 81419 #2	TS=(DAS81419* OR DAS-81419 OR DAS-81419-2 OR (81419 AND (soy* OR soja* OR Glycine OR Dow OR Corteva)) OR Conkasta*)	17
Stack #3	TS=(*DAS-44406-6xDAS-81419-2*)	0
#4	#1 OR #2 OR #3	91
Protein 44406 #5	TS=(2m-epsps OR 2mepsps OR ((5-enolpyruvylshikimate-3-phosphate-synthase OR epsps OR 5-enol-pyruvylshikimate-3-phosphate-synthase OR 5-enolpyruvylshikimate-3-phosphate-synthase OR 3-Phosphoshikimate-1-Carboxyvinyltransferase OR EPSP-synthase) AND modified AND protein AND (maize OR corn OR zea OR mays)) OR (phosphinothricin AND (acetyltransferase OR acetyl-transferase)) OR (pat AND phosphinothricin) OR aad-12 OR aryloxyalkanoate-dioxygenase-12)	485
Protein 81419 #6	TS=(cry1f OR cry-1f OR cryif OR "cry-if" OR Cry1-f OR Cry-1-f OR cry1Ac OR Cry1-Ac OR cry1a-c OR cryiAc OR Cryi-Ac OR cryia-c OR (cry AND (1Ac or 1-Ac or iAc or i-Ac)) OR (phosphinothricin AND (acetyltransferase OR acetyl-transferase)) OR (pat AND phosphinothricin))	3003
General #7	TS=(Streptomyces OR viridochromogenes OR Delftia OR acidovorans OR Bacillus OR thuringiensis OR bt OR soy* OR soja* OR glycine OR (((herbicide* AND (genetic* NEAR/3 (modif* or engineer*))) OR GMHT) AND (crop OR plant OR food OR feed)) OR gmo OR gmos OR lmo OR lmos OR gm OR ge OR stack)	976,588
#8	(#5 OR #6) AND #7	2782
Trait 44406 #9	TS=(glyphosate* OR Roundup OR "Round-up" OR glyphosate* OR glyphosate* OR glifosate* OR ((2-4-D OR AOPP) AND herbicide*) OR 2-4-dichlorophenoxyacetic-acid OR 2-4-dichlorophenoxy-acetic-acid OR aryloxyphenoxypropionate OR aryloxyphenoxy-propionate OR (fop AND (herbicide* or aryloxyphen*)) OR quizalofop	29,471

	OR haloxyfop OR glufosinate* OR gluphosinate* OR (liberty* AND herbicid*))	
Trait 81419 #10	TS=(lepidopter* OR velvetbean OR anticarsia OR gemmatalis OR soy*bean*-looper* OR chrysodeixis OR includens OR pseudoplusia OR glufosinate* OR gluphosinate* OR (Liberty* AND herbicid*))	73,118
General #11	TS=((toler* OR resist* OR protec*) AND (soy* OR soja* OR Glycine OR max) AND (gmo OR gmos OR lmo OR lmos OR living-modified OR transgen* OR GMHT OR ((GM OR GE OR genetic*) NEAR/3 (modif* OR transform* OR manipulat* OR engineer* OR stack))))	3079
#12	(#9 OR #10) AND #11	806
Reporting Period #13	PY=(2022-2100) (and added to the database on or since date of 2022 PMEM search ran on Aug 8)	2,592,873
Final Results #14	(#4 OR #8 OR #12) AND #13	105

CAB Abstracts

Set	Search query	Results
Event 44406 #1	TS=(DAS44406* OR DAS-44406 OR DAS-44406-6 OR DAS-44406-6 OR ((44406 OR Enlist*) AND (soy* OR soja* OR Glycine OR Dow OR Corteva OR herbicid*)))	87
Event 81419 #2	TS=(DAS81419* OR DAS-81419 OR DAS-81419-2 OR (81419 AND (soy* OR soja* OR Glycine OR Dow OR Corteva)) OR Conkesta*)	14
Stack #3	TS=(*DAS-44406-6xDAS-81419-2*)	0
#4	#1 OR #2 OR #3	95
Protein 44406 #5	TS=(2m-epsps OR 2mepsps OR ((5-enolpyruvylshikimate-3-phosphate-synthase OR epsps OR 5-enol-pyruvylshikimate-3-phosphate-synthase OR 5-enolpyruvylshikimate-3-phosphate-synthase OR 5-enolpyruvylshikimate-3-phosphate-synthase OR 3-Phosphoshikimate-1-Carboxyvinyltransferase OR EPSP-synthase) AND modified AND protein AND (maize OR corn OR zea OR mays)) OR (phosphinothricin AND (acetyltransferase OR acetyl-transferase)) OR (pat AND phosphinothricin) OR aad-12 OR aryloxyalkanoate-dioxygenase-12)	526
Protein 81419 #6	TS=(cry1f OR cry-1f OR cryif OR "cry-if" OR Cry1-f OR Cry-1-f OR cry1Ac OR Cry1-Ac OR cry1a-c OR cryiAc OR Cryi-Ac OR cryia-c OR (cry AND (1Ac or 1-Ac or iAc or i-Ac)) OR (phosphinothricin AND (acetyltransferase OR acetyl-transferase)) OR (pat AND phosphinothricin))	3095
General #7	TS=(Streptomyces OR viridochromogenes OR Delftia OR acidovorans OR Bacillus OR thuringiensis OR bt OR soy* OR soja* OR glycine OR (((herbicid* AND (genetic* NEAR/3 (modif* or engineer*))) OR GMHT) AND (crop OR plant OR food OR feed)) OR lmo OR lmos OR ge OR "genetically engineered foods" OR stack)	601,425
#8	(#5 OR #6) AND #7	2744
Trait 44406 #9	TS=(glyphosate* OR Roundup OR "Round-up" OR glyfosate* OR gliphosate* OR glifosate* OR ((2-4-D OR AOPP) AND herbicid*) OR 2-4-dichlorophenoxyacetic-acid OR 2-4-dichlorophenoxy-acetic-acid OR aryloxyphenoxypropionate OR aryloxyphenoxy-propionate OR (fop AND (herbicid* or aryloxyphen*)) OR quizalofop OR haloxfop OR glufosinate* OR gluphosinate* OR (liberty* AND herbicid*))	67,300
Trait 81419 #10	TS=(lepidopter* OR velvetbean OR anticarsia OR gemmatilis OR soy*bean*-looper* OR chrysodeixis OR	227,893

	includens OR pseudoplusia OR glufosinate* OR gluphosinate* OR (Liberty* AND herbicid*))	
General #11	TS=((toler* OR resist* OR protec*) AND (soy* OR soja* OR Glycine OR max) AND (GMHT OR transgen* OR engineer* OR lmo or lmos OR ge OR manipul* OR transform* OR stack OR "genetically engineered foods"))	4214
#12	(#9 OR #10) AND #11	936
Reporting Period #13	PY=(2022-2100) (and added to the database on or since date of 2022 PMEM search ran on Aug 8)	360,901
Final Results #14	(#4 OR #8 OR #12) AND #13	104

MEDLINE

Set	Search query	Results
Event 44406 #1	TS=(DAS44406* OR DAS-44406 OR DAS-44406-6 OR ((44406 OR Enlist*) AND (soy* OR soja* OR Glycine OR Dow OR Corteva OR herbicid*)))	41
Event 81419 #2	TS=(DAS81419* OR DAS-81419 OR DAS-81419-2 OR (81419 AND (soy* OR soja* OR Glycine OR Dow OR Corteva)) OR Conkesta*)	10
Stack #3	TS=(*DAS-44406-6xDAS-81419-2*)	0
#4	#1 OR #2 OR #3	46
Protein 44406 #5	TS=(2m-epsps OR 2mepsps OR ((5-enolpyruvylshikimate-3-phosphate-synthase OR epsps OR 5-enol-pyruvylshikimate-3-phosphate-synthase OR 5-enolpyruvylshikimate-3-phosphate-synthase OR 5-enolpyruvylshikimate-3-phosphate-synthase OR 3-Phosphoshikimate-1-Carboxyvinyltransferase OR EPSP-synthase) AND modified AND protein AND (maize OR corn OR zea OR mays)) OR (phosphinothricin AND (acetyltransferase OR acetyl-transferase)) OR (pat AND phosphinothricin) OR aad-12 OR aryloxyalkanoate-dioxygenase-12)	284
Protein 81419 #6	TS=(cry1f OR cry-1f OR cryif OR "cry-if" OR Cry1-f OR Cry-1-f OR cry1Ac OR Cry1-Ac OR cry1a-c OR cryiAc OR Cryi-Ac OR cryia-c OR (cry AND (1Ac or 1-Ac or iAc or i-Ac)) OR (phosphinothricin AND (acetyltransferase OR acetyl-transferase)) OR (pat AND phosphinothricin))	1742
General #7	TS=(Streptomyces OR viridochromogenes OR Delftia OR acidovorans OR Bacillus OR thuringiensis OR bt OR soy* OR soja* OR glycine OR (((herbicid* AND (genetic* NEAR/3 (modif* or engineer*))) OR GMHT) AND (crop OR plant OR food OR feed)) OR lmo OR lmos OR ge OR "Food, Genetically Modified" OR stack)	418,919
#8	(#5 OR #6) AND #7	1627
Trait 44406 #9	TS=(glyphosate* OR Roundup OR "Round-up" OR glyfosate* OR gliphosate* OR glifosate* OR ((2-4-D OR AOPP) AND herbicid*) OR 2-4-dichlorophenoxyacetic-acid OR 2-4-dichlorophenoxy-acetic-acid OR aryloxyphenoxypropionate OR aryloxyphenoxy-propionate OR (fop AND (herbicid* or aryloxyphen*)) OR quizalofop OR haloxyfop OR glufosinate* OR gluphosinate* OR (liberty* AND herbicid*))	12,071
Trait 81419 #10	TS=(lepidopter* OR velvetbean OR anticarsia OR gemmatilis OR soy*bean*-looper* OR chrysodeixis OR	22,192

	includens OR pseudoplusia OR glufosinate* OR gluphosinate* OR (Liberty* AND herbicid*))	
General #11	TS=((toler* OR resist* OR protec*) AND (soy* OR soja* OR Glycine OR max) AND (GMHT OR transgen* OR engineer* OR lmo or lmos OR ge OR manipul* OR transform* OR stack OR "Food, Genetically Modified"))	2852
#12	(#9 OR #10) AND #11	409
Reporting Period #13	PY=(2022-2100) (and added to the database on or since date of 2022 PMEM search ran on Aug 8)	1,261,461
Final Results #14	(#4 OR #8 OR #12) AND #13	68

Europe PMC

("DAS-44406xDAS-81419" OR DAS44406 OR "DAS-44406" OR "DAS-44406-6" OR "44406 soy" OR "soy 44406" OR DAS81419 OR "DAS-81419" OR "81419 soy" OR "soy 81419") AND (FIRST_PDATE:[2022-01-01 TO 2100-12-31]) AND (FIRST_IDATE:[2022-08-08 TO 2100-12-31])

= 4 results

Appendix 2. Eligibility/Inclusion Criteria¹

Concept	Criteria
Population (taking into account scope of the authorisation)	<p>Publication addressing human and animal health, and/or the environment relevant for the scope of the authorisation.</p> <p>The pathways and level of exposure to the GMO, derived food/feed products, and the intended traits addressed in the study (as assessed under the Intervention/exposure part) are relevant for the intended uses of the GMO and derived food/feed products under regulatory review (e.g. in case of an authorisation for food, food, import, efficacy of the traits, pest susceptibility, etc. are not considered relevant).</p>
Intervention/exposure	DAS-44406-6, DAS-81419-2, DAS-81419-2 × DAS-44406-6 soybean and derived food/feed products, and/or the intended traits (the newly expressed protein(s)).
Intervention/exposure Plant species	In case of studies using GM plants, only studies using soybean are considered eligible. This criterion is not employed for studies regarding the newly expressed proteins.
Intervention/exposure Source organism of the protein	In case of publications using the protein of interest, only publications with the protein from the specific source organism will be considered eligible.
Comparator	If the study is a comparative study that uses plant material as test material, eligible publications must report a non-GM variety.
Outcomes	<p>Effects/impacts on human and animal health, and/or the environment are addressed.</p> <p>Publications addressing other issues such as benefits, socio-economics, ethics, crop protection, detection methods, efficacy, public perception and risk communication are to be excluded using this criterion, as they are not relevant to the risk assessment of GMOs.</p>
Reporting format	<p>Original/primary data are presented in the study. This permits the exclusion of publications that do not present original/primary data (e.g., reviews, editorial, position papers).</p> <p>However, risk assessments from relevant risk assessment bodies (excluding EFSA) will not be excluded.</p>

¹ This table is provided for ease of reference, no updates have been introduced since the previous report.

Appendix 3. New entries retrieved by the performed searches to literature databases for the authorised GM soybean within the indicated search period (excluding duplicates retrieved by the previous searches conducted in 2022)

- Abbate S, Madeira F, Silva H, Altier N and Pons X, **2022**. Association between landscape composition and the abundance of predator and herbivore arthropods in Bt and non-Bt soybean crops. *Agriculture Ecosystems & Environment* 336. <http://dx.doi.org/10.1016/j.agee.2024.108027>
- Aguiar MCS, Freitas MMd, Freitas CAd, Boica Junior AL, Carneiro RL, Silva MFDGFd, Fernandes JB and Forim MR, **2022**. Exploring chemical diversity in Glycine max cultivars: a multivariate approach in the search for bioactive compounds against *Spodoptera cosmioides*. *Frontiers in Plant Science* 13. <http://dx.doi.org/10.3389/fpls.2022.987782>
- Ahmad SF, Gulzar A, Abbas N, Tariq M, Ali I and Hafez AM, **2022**. Realized Heritability, Risk Assessment, and Inheritance Pattern in *Earias vittella* (Lepidoptera: Noctuidae) Resistant to Dipel (*Bacillus thuringiensis* Kurstaki). *Toxins* 14. <http://dx.doi.org/10.3390/toxins14100686>
- Ahmad SF, Gulzar A, Tariq M, Rasool B, Khan D, Ullah S and Asad MJ, **2022**. Resistance, cross-resistance and stability of resistance to *Bacillus thuringiensis* kurstaki in *Earias vittella* (Fabricius) (Lepidoptera: Noctuidae). *Biological Control* 175. <http://dx.doi.org/10.1016/j.biocontrol.2022.105058>
- Alves RD, D'Assuncao CG, Alves ER, de Albuquerque YML, de Melo IMF, da Silva VA, Wanderley-Teixeira V and Teixeira AAC, **2023**. *Bacillus thuringiensis* affects reproductive capacity of adult rat offspring. *Biotechnic & Histochemistry* 98, 112-125. <http://dx.doi.org/10.1080/10520295.2022.2121422>
- Amajioyi J, Nleya T, Reicks G, Moriles-Miller J, Clay D and Clay S, **2022**. Auxin-based herbicide program for weed control in auxin resistant soybean. *Agrosystems Geosciences & Environment* 5. <http://dx.doi.org/10.1002/agg2.20299>
- Amin MR, Oh SD, Afrose M, Park SY, Yun DW, Ryu TH, Lee SK, Ha K, Bae E, Kang S, Kim CG, Eun CU, Kim YK, Kim M, Kim D, Kim D and Suh SJ, **2022**. Influence of Genetically Modified Soybean Expressing Epidermal Growth Factor on Arthropod Biodiversity. *Gm Crops & Food-Biotechnology in Agriculture and the Food Chain* 13, 299-308. <http://dx.doi.org/10.1080/21645698.2022.2141016>
- Anderson JA, Mickelson J, Fast BJ, Smith N, Pauli RC and Walker C, **2023**. Genetically modified DP915635 maize is agronomically and compositionally comparable to non-genetically modified maize. *Gm Crops & Food-Biotechnology in Agriculture and the Food Chain* 14, 1-8. <http://dx.doi.org/10.1080/21645698.2023.2208997>
- Annepu AA, Naik VCB, Rao G, Kukanur VS, Chiranjivi C, Kumar PA and Rao VS, **2023**. Frequency of Cry1Ac and Cry2Ab resistance alleles in pink bollworm, *Pectinophora gossypiella* Saunders from Andhra Pradesh, India. *Phytoparasitica* 51, 491-502. <http://dx.doi.org/10.1007/s12600-023-01066-x>
- Ashraf MA, Shahid AA, Rao AQ, Brown JK and Husnain T, **2022**. Development and Evaluation of the Cotton Leaf Curl Kokhran Virus-Burewala Bidirectional Promoter for Enhanced Cry1Ac Endotoxin Expression in Bt Transgenic Cotton. *Applied Sciences-Basel* 12. <http://dx.doi.org/10.3390/app122111275>
- Banerjee R, De Bortoli CP, Huang F, Lamour K, Meagher R, Buntin D, Ni X, Reay-Jones FPF, Stewart S and Jurat-Fuentes JL, **2022**. Large genomic deletion linked to field-evolved resistance to Cry1F corn in fall armyworm (*Spodoptera frugiperda*) from Florida. *Scientific Reports* 12. <http://dx.doi.org/10.1038/s41598-022-17603-3>

- Barcellos GA, Hanich MR, Pretto VE, Weschenfelder MAG, Horikoshi RJ, Dourado PM, Ovejero RFL, Berger GU, Martinelli S, Head GP and Bernardi O, **2023**. Characterizing the lethal and sub-lethal effects of genetically modified soybean expressing Cry1A.105, Cry2Ab2, and Cry1Ac insecticidal proteins against *Spodoptera* species (Lepidoptera: Noctuidae) in Brazil. *Pest Management Science* 79, 548-559. <http://dx.doi.org/10.1002/ps.7225>
- Benevenuto RF, Zanatta CB, Wassmann F, Eckerstorfer MF and Agapito-Tenfen SZ, **2023**. Integration of omics analyses into GMO risk assessment in Europe: a case study from soybean field trials. *Environmental Sciences Europe* 35. <http://dx.doi.org/10.1186/s12302-023-00715-6>
- Bidoia VS, Neto JCD, Maciel CDD, Tropaldi L, Carbonari CA, Duke SO and de Carvalho LB, **2023**. Lack of Significant Effects of Glyphosate on Glyphosate-Resistant Maize in Different Field Locations. *Agronomy-Basel* 13. <http://dx.doi.org/10.3390/agronomy13041071>
- Braz GBP, Freire ES, Pereira BCS, Farnese FdS, Souza MdF, Loram-Lourenco L and Sousa LFd, **2022**. Agronomic performance of RR soybean submitted to glyphosate application associated with a product based on *Bacillus subtilis*. *Agronomy* 12. <http://dx.doi.org/10.3390/agronomy12122940>
- Brillon JB, Lucotte M, Tremblay G, Smedbol E and Paquet S, **2023**. Impacts of glyphosate-based herbicide on leaf stomatal density and biomass production of transgenic soybean (*Glycine max* L. Merr.) and corn (*Zea mays* L.). *Acta Physiologiae Plantarum* 45. <http://dx.doi.org/10.1007/s11738-023-03540-9>
- Butovets ES, Lukyanchuk LM and Vasina EA, **2022**. Far-eastern soybean variety briz. *Kormoproizvodstvo* 34-37. <http://dx.doi.org/>
- Cai L, Qin R, Li X, Liu X, Yu D and Wang H, **2023**. GmERF54, an ERF transcription factor, negatively regulates the resistance of soybean to the common cutworm (*Spodoptera litura* Fabricius). *Agronomy* 13. <http://dx.doi.org/10.3390/agronomy13020596>
- Carpane PD, Llebaria M, Nascimento AF and Vivan L, **2022**. Feeding injury of major lepidopteran soybean pests in South America. *Plos One* 17. <http://dx.doi.org/10.1371/journal.pone.0271084>
- Carriere Y and Tabashnik BE, **2023**. Fitness Costs and Incomplete Resistance Associated with Delayed Evolution of Practical Resistance to Bt Crops. *Insects* 14. <http://dx.doi.org/10.3390/insects14030214>
- Carvalho IF, Machado LL, Neitzke CG, Erdmann LL, Oliveira LT, Bernardi D and Rosa APSAd, **2022**. Biological parameters and fertility life table of *Spodoptera frugiperda* in different host plants. *Journal of Agricultural Science (Toronto)* 14, 48-56. <http://dx.doi.org/10.5539/jas.v14n10p48>
- Chae H, Wen ZM, Hootman T, Himes J, Duan QQ, McMath J, Ditillo J, Sessler R, Conville J, Niu Y, Matthews P, Francischini F, Huang FN and Bramlett M, **2022**. eCry1Gb.1Ig, A Novel Chimeric Cry Protein with High Efficacy against Multiple Fall Armyworm (*Spodoptera frugiperda*) Strains Resistant to Different GM Traits. *Toxins* 14. <http://dx.doi.org/10.3390/toxins14120852>
- Chen K, Liu H and Ding W, **2022**. Effect of glyphosate on soil nutrient and the functional enzyme activities in soybean fields. *Journal of Agricultural Science and Technology (Beijing)* 24, 180-188. <http://dx.doi.org/10.13304/j.nykjdb.2021.0781>
- Chen H, Huang YQ, Ye MN, Wang Y, He XY and Tu JM, **2023**. Achieving High Expression of Cry in Green Tissues and Negligible Expression in Endosperm Simultaneously via rbcS Gene Fusion Strategy in Rice. *International Journal of Molecular Sciences* 24. <http://dx.doi.org/10.3390/ijms24109045>

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Appendix 4. Publications screened for relevance based on the full text

Table 4.1. Report of all relevant publications retrieved after detailed assessment of full-text documents for relevance

Category of information/ data requirement(s)	Reference (Author, year, title, source)
None	Not applicable

Table 4.2. Report of publications excluded from the risk assessment after detailed assessment of full-text documents

Reference (Author, year, title, source)	Reason(s) for exclusion based on eligibility/inclusion criteria
Concato AC, Tamagno WA, Alves C, Sutorillo NT, Vanin AP, Vargas L, Kaizer RR and Galon L, 2022 . Enzymatic antioxidant defense system and ALA-D enzyme activity in soybean Enlist (TM) line. <i>Bragantia</i> 81, 1-11. http://dx.doi.org/10.1590/1678-4499.20220010	Comparator (no Non-GM control) Outcomes (focusing on pesticide use)
Varunjikar MS, Bohn T, Sanden M, Belghit I, Pineda-Pampliega J, Palmblad M, Broll H, Braeuning A and Rasinger JD, 2023 . Proteomics analyses of herbicide-tolerant genetically modified, conventionally, and organically farmed soybean seeds. <i>Food Control</i> 151. http://dx.doi.org/10.1016/j.foodcont.2023.109795	Intervention/exposure (not on authorised GM soybean)

Table 4.3. Report of unobtainable/unclear publications

Reference (Author, year, title, source)	Description of (unsuccessful) methods used to try to obtain a copy of the publication
None	Not applicable