No	Data requirement (indicated by the corresponding CA / CP data point number)	Author(s)	Year	Title	Source	Justification
						protection products, the study must be considered non relevant for EU Annex I renewal purposes from an ecotoxicology risk assessment perspective.
257	CA 8.3.2, CP 10.3.2	Castilhos R. V. et al.	2011	Selectivity of pesticides used in peach orchard on adults of Chrysoperla externa (Hagen, 1861) (Neuroptera: Chrysopidae). Original title: Seletividade de agrotoxicos utilizados em pomares de pessego a adultos do predador Chrysoperla externa (Hagen, 1861) (Neuroptera: Chrysopidae).	Revista Brasileira de Fruticultura (2011), Vol. 33, No. 1, pp. 73	5.4.1 case b) Relevant but supplementary information: Roundup (and many other pesticides) were used as the test substance. Only mortality of lacewing were assessed. Likewise no reproduction endpoints were evaluated and thus no data is relevant to the risk assessment.
438	CA 8.3.2, CP 10.3.2	Lu Li-li et al.	2010	Effects of glyphosate on the growth and development of Agasicles hygrophila	Huanan Nongye Daxue Xuebao (2010), Vol. 31, pp. 22	5.4.1 case b) Relevant but supplementary information: The test substance is 41% glyphosate IPA salt. The study on Agasicles hygrophila was not conducted or based on a relevant NTA guideline.
531	CA 8.3.2, CP 10.3.2	Rainio M. J. et al.	2019	Effects of a glyphosate-based herbicide on survival and oxidative status of a non-target herbivore, the Colorado potato beetle (Leptinotarsa decemlineata)	Comparative biochemistry and physiology. Toxicology & pharmacology (2019), Vol. 215, pp. 47	5.4.1 case b) Relevant but supplementary information: The material and methods section lacks some important information. Newly hatched larvae from field collected beetles were used, however information on previous exposure to other chemicals or field history was not documented. Information on replicates, loading per replicate and test conditions were not reported. The preparation of the test solution was not specified. The test approach used does not follow a recognised test guideline and the rationale for the route of exposure and the dosing volumes used, is not described. The author indicates that a 100% Roundup Bio exposure in nature is unlikely to occur and that the high concentration mainly tests the physiological limits of the system including the antioxidant enzyme capacity of the beetles against the product. Exposure levels where significant effects were observed are unrealistic highlighting. There was no analytical verification, and the study was not performed according to GLP. Furthermore, endpoints based on biochemical analyses of larval homogenates cannot be applied in regulatory risk ecotoxicology assessment of non-target arthropods. Given the unrealistically high exposure levels used in the study, the non-guideline approach and the uncertainties as identified above, the study is considered as supplementary only.
651	CA 8.3.2, CP 10.3.2	You W-y. et al.	2010	Toxicity Evaluation of Sixteen Herbicides to Bombyx mori.	Asian Journal of Ecotoxicology (2010), Vol. 5, No. 1, pp. 91	5.4.1 case b) Relevant but supplementary information: Effects on silkworm via exposure of treated leaves. However, the application method is not specified. The amount of test solution per leaf, the consumed diet per silkworm and the number of organisms per replicate is unclear. Also no control results are available. Therefore the biological results can not be used for risk assessment.

No	Data requirement (indicated by the corresponding CA / CP data point number)	Author(s)	Year	Title	Source	Justification
662	CA 8.3.2, CP 10.3.2	Zhang Q. et al.	2011	An evaluation on acute toxicity of 29 pesticides to Bombyx mori	Canye Kexue (2011), Vol. 37, No. 2, pp. 343	5.4.1 case b) Relevant but supplementary information: Effects of glyphosate (95% TC) on silkworms by using the leaf dipping method: 5 g mulberry leaves were evenly immersed in 10 mL test solution for 10s. However, no useful concentration can be derived. No control results available.
556	CA 8.4, CP 10.4.2.2	Santos M. J. G. et al.	2012	Pesticide application to agricultural fields: effects on the reproduction and avoidance behaviour of Folsomia candida and Eisenia andrei.	Ecotoxicology (2012), Vol. 21, No. 8, pp. 2113	5.4.1 case b) Relevant but supplementary information: The study is well described and performed according to ISO guidelines. Validity criteria were met, where relevant. Glyphosate did not seem to affect either earthworms or collembolans at the recommended field dose; therefore there were no endpoints presented in the paper, thus the study is considered supplementary only.
305	CA 8.4.1	Dominguez A. et al.	2016	Toxicity of AMPA to the earthworm Eisenia andrei Bouche, 1972 in tropical artificial soil.	Scientific reports (2016), Vol. 6, pp. 19731	5.4.1 case b) Relevant but supplementary information: The study is well-documented and performed according to ISO guideline 11268-1 and 11268-2. However, the artificial soil used is not classed as representative in the EU. Soil characteristics are only partly given as information on CEC, organic carbon content and bulk density are missing. Additionally, one of the validity criteria for the chronic test was not met (the reported minimum number of control juveniles is too low). Endpoints (NOEC, LC50) were not derived and therefore this study delivers only supplementary information.
345	CA 8.4.1	Hackenberger Davorka K. et al.	2018	Acute and subchronic effects of three herbicides on biomarkers and reproduction in earthworm Dendrobaena veneta.	Chemosphere (2018), Vol. 208, pp. 722	5.4.1 case b) Relevant but supplementary information: The chronic test was performed according to OECD 222. However, the study was not conducted to GLP. Information on validity criteria are missing, and there is not analytical verification of soil concentrations. The unexpectedly high number of cocoons and the low number of juveniles being produced in the control group at the end of the study suggests that the quality of the earthworms going into the study may have been low. According to OECD 222, by the end of the test, the number of juveniles produced per adult worm should be > 30. In this case, with six adult worms per replicate there was a mean production (juveniles per worm) of 2.67 worms per adult. It is also understood that the OECD 222 test guideline uses a different species (Eisenia fetida) and not Dendrobaena veneta. It is relevant to consider juvenile production in the control as a check on the test system robustness. This cannot be confirmed in this case. Therefore, the study can be considered acceptable as supplementary information.
367	CA 8.4.1	Jarmul-Pietraszczyk J. et al.	2012	Herbicide toxicity to the California earthworms Eisenia fetida Sav. and Dendrobaena veneta Rosa	Ecological Chemistry and Engineering A (2012), Vol. 19, No. 9, pp. 1133	5.4.1 case b) Relevant but supplementary information: This study compared the toxicity of three different commercially available formulations on the reproduction of earthworms, among them a glyphosate containing product (Glifocyd 360 SL). Further detail on active substance content, source and storage conditions were not provided. The study was not conducted according to a recognized test guideline nor under GLP. The origin of the earthworm species and their environmental holding conditions prior to and during the

No	Data requirement (indicated by the corresponding CA / CP data point number)	Author(s)	Year	Title	Source	Justification
						study have not been included. Information on the test soil characteristics is also missing and application of the test item to the soil is not described in detail. Sublethal and reproductive parameters of the control were reported, but information about control mortality is missing. In the chronic test only one single test item concentration was tested, with this information for the acute study missing. The endpoint generated from this study is given in mg/L and it is not clear how it can be transferred to soil concentrations as the bulk density in the test system is unknown and the statistical analysis is not provided in detail. Therefore, the endpoint presented is considered unreliable.
520	CA 8.4.1	Pochron S. et al.	2020	Glyphosate but not Roundup® harms earthworms (Eisenia fetida).	Chemosphere (2020), Vol. 241, pp. 125017	5.4.1 case b) Relevant but supplementary information: The study was not conducted to GLP. The test design does not correspond to a current test guideline for earthworms focusing on reproduction parameters and there is no endpoint for risk assessment. Only a single dose level was used in the test, which is equivalent to 19.7 kg/ha; substantially higher than the maximum proposed application rate of glyphosate for the renewal. There was no analytical confirmation of levels tested, so exposure cannot be confirmed.
555	CA 8.4.1	Santadino M. et al.	2014	Glyphosate Sublethal Effects on the Population Dynamics of the Earthworm Eisenia fetida (Savigny, 1826)	Water, air, and soil pollution (2014), Vol. 225, No. 12, pp. 2207	5.4.1 case b) Relevant but supplementary information: The chronic laboratory study with E. fetida was not performed according to a recommended guideline and thus, no validity criteria were given. Insufficient information is provided on the experimental design, as no information on the soil characteristics and the application of the test item is given. Only two test item treatment rates, without giving any rationale for choosing the higher dose, and a negative control were tested, but no positive control. No information on underlying raw data is given, i.e. number of control mortality, number of juveniles and cocoons etc. Finally, there are no quantifiable endpoints presented in the paper, considered applicable to an EU level ecotoxicological risk assessment for renewal purposes.
590	CA 8.4.1	Stellin F. et al.	2017	Effects of different concentrations of glyphosate (Roundup 360A®) on earthworms (Octodrilus complanatus, Lumbricus terrestris and Aporrectodea caliginosa) in vineyards in the North-East of Italy	Applied soil ecology (2018), Vol. 123, pp 802	5.4.1 case b) Relevant but supplementary information: The study has not been conducted according to a recognized test guideline and there are no validity criteria presented. There is no information on the choice of test duration and the experimental design is not sufficiently described. A formulation was tested, but no information is given on the set-up of the spray solution, how application was carried out and at which volume. For the soil sampling, the time point of sampling is not stated and no information on storage conditions of the soil prior to use in the study is given. Additionally, information on the soil depth in the experimental test containers is not mentioned. Similarly no information on food and environmental conditions during the exposure period (e.g. temperature, soil

No	Data requirement (indicated by the corresponding CA / CP data point number)	Author(s)	Year	Title	Source	Justification
						moisture, light conditions) are available. Finally, there are no quantifiable endpoints presented in the paper.
274	CA 8.4.2	Correia F. V. et al.	2010	Effects of glyphosate and 2,4-D on earthworms (Eisenia foetida) in laboratory tests.	Bulletin of environmental contamination and toxicology (2010), Vol. 85, No. 3, pp. 264	5.4.1 case b) Relevant but supplementary information: Study looks at the impact of glyphosate on earthworm reproduction. Conducted to relevant guidelines. Technical glyphosate used, Brazilian soils used. Test concentrations from 1 to 1000 mg/kg in a 56 day study. Data is useful but there is no reliable endpoint to be used in the regulatory risk assessment of glyphosate renewal.
308	CA 8.4.2	Druart C. et al.	2010	Towards the development of an embryotoxicity bioassay with terrestrial snails: screening approach for cadmium and pesticides.	Journal of hazardous materials (2010), Vol. 184, No. 1-3, pp. 26	5.4.1 case b) Relevant but supplementary information: Glyphosate a.i., glyphosate products and other products used to compare toxicity to land snails. LC50 generated. But new method descibed not to any established guideline.
325	CA 8.4.2	Garcia-Torres T. et al.	2014	Exposure assessment to glyphosate of two species of annelids.	Bulletin of environmental contamination and toxicology (2014), Vol. 93, No. 2, pp. 209	5.4.1 case b) Relevant but supplementary information: Information may be used to support the lack of effects in earthworm studies.
481	CA 8.4.2	Nevius B. A. et al.	2012	Surface-functionalization effects on uptake of fluorescent polystyrene nanoparticles by model biofilms.	Ecotoxicology (2012), Vol. 21, No. 8, pp. 2205	5.4.1 case b) Relevant but supplementary information: This paper discusses the results of an earthworm avoidance study which is not an endpoint type used in EU level risk assessment for Annex I renewal. Therefore it is considered to be supplementary. No effects were observed for glyphosate exposure.
544	CA 8.4.2	Rose M. T. et al.	2018	Minor effects of herbicides on microbial activity in agricultural soils are detected by N-transformation but not enzyme activity assays	European journal of soil biology (2018), Vol. 87, pp. 72	5.4.1 case b) Relevant but supplementary information: Non-EU soil but relevant endpoints demonstarting a lack of effects on soil microbial populations (n-trans) at field application rates.
615	CA 8.4.2	Ulu T. C. et al.	2016	Effects of different pesticides on virulence and mortality of some entomopathogenic nematodes.	ISJ-Invertebrate Survival Journal (2016), Vol. 13, pp. 111	5.4.1 case b) Relevant but supplementary information: Nematode mortality and effects on virulence are not endpoints used in EU level ecotox risk assessment for the renewal.
230	CA 8.5	Bortoli P. V. et al.	2012	Effects of glyphosate on microbial community structure and activity in two soils under olive plantations. Original Title: Efectos del herbicida glifosato sobre la estructura y el funcionamiento de comunidades microbianas de dos suelos de plantaciones de olivo.	Ecologia Austral (2012), Vol. 22, No. 1, pp. 33	5.4.1 case b) Relevant but supplementary information: Paper presents information on the effects of glyphosate on respiration but the approaches used do not result in endpoints that can be used in an EU level risk assessment as they are based on Argentinian soils.
479	CA 8.5	Nathan V. K. et al.	2020	Pesticide application inhibit the microbial carbonic anhydrase-mediated carbon sequestration in a soil microcosm.	Environmental science and pollution research international (2020), Vol. 27, pp. 4468	5.4.1 case b) Relevant but supplementary information: Endpoints presented are not relevant to the direct effects assessment required for Annex I renewal. However, it does inform in other areas, e.g biodiversity / benefits of glyphosate use.
484	CA 8.5	Nunez S. et al.	2015	In vitro effect of N-(phosphonomethyl) glycine agrochemicals on total heterotrophic bacteria and azotobacter chroococcum.	Biocell (2015), Vol. 39, Suppl. 1. Abstract No.: A71.	5.4.1 case b) Relevant but supplementary information: Endpoints based on the effects of glyphosate on bacteria in soil are not considered in the EU level ecotox risk assessmen for Annex I renewal.

No	Data requirement (indicated by the corresponding CA / CP data point number)	Author(s)	Year	Title	Source	Justification
554	CA 8.5	Samal S. et al.	2019	Evaluating the effect of monocrotophos and glyphosate on microbial population and certain important exoenzyme activities in soil.	Journal of Environmental Biology (2019), Vol. 40, No. 2, pp. 226	5.4.1 case b) Relevant but supplementary information: Dosing information / purity of both active substances cannot be confirmed. Study not conducted according to a recognised guideline. Presented endpoints not relateable to an EU level risk assessment based on lack of soil characterisation.
594	CA 8.5	Sun Q. et al.	2012	Effects of typical herbicides on soil respiration and N2O emissions from soil added with different nitrogen fertilizers.	Huan jing ke xue= Huanjing kexue (2012), Vol. 33, No. 6, pp. 1994	5.4.1 case b) Relevant but supplementary information: The study uses soil from fields in China, without describing the history of the fields (e.g. prior pesticide and fertilizer use), soil sampling, and soil storage conditions prior to the start of the experiment. Soil characteristics are unclear as no information on e.g. CEC and water holding capacity is available. The study was not conducted to a relevant guideline and thus no validity criteria are available. A negative control was included, but no information on replicates is available and only one test item concentration was tested. No positive control was tested. Application of the test item is not described well, the active substance content of the test item is not given and no verification of applied test amount was performed. Finally, there is no quantifiable endpoint presented.
187	CA 8.6	Aguilar-Dorantes K. et al.	2015	Glyphosate Susceptibility of Different Life Stages of Three Fern Species	American fern journal (2015), Vol. 105, No. 3, pp. 131	5.4.1 case b) Relevant but supplementary information: Considered supplementary as species not relateable to an EU level risk assessment for Annex I renewal.
195	CA 8.6	Allison J. E. et al.	2013	Influence of soil organic matter on the sensitivity of selected wild and crop species to common herbicides.	Ecotoxicology ((2013), Vol. 22, No. 8, pp. 1289	5.4.1 case b) Relevant but supplementary information: Soils with a modified nutrient status were used which is not a requirement for the studies conducted to support the renewal in the EU.
219	CA 8.6	Barriuso J. et al.	2011	Effect of the herbicide glyphosate on the culturable fraction of glyphosate-tolerant maize rhizobacterial communities using two different growth media.	Microbes and environments (2011), Vol. 26, No. 4, pp. 332	5.4.1 case b) Relevant but supplementary information: The study was a comparison between glyphosate and Harness GTZ (pre-emergence herbicide). glyphosate (Roundup plus) was applied at appropriate concentrations (360 g/kl, 0.72 kg/ha), the study looked at the rhizobacterial communities of glyphosate tolerant maize. The study was not to any relevant guideline and did not provide an endpoint relevant to the renewal of glyphosate.
232	CA 8.6	Bott S. et al.	2011	Phytotoxicity of glyphosate soil residues re-mobilised by phosphate fertilisation	Plant and soil (2011), Vol. 342, No. 1-2, pp. 249	5.4.1 case b) Relevant but supplementary information: Roundup ultra max (360 g/L, applied up to 4.8 mg ae/kg soil), study looked at the impact of phosphate and glyphosate competition in the soil and subsequent availability of NTTP and impact on soil characteristics (in different soil types) to soybean growth. AMPA is also considered in the article. However, a regulatory endpoint suitable for the renewal of glyphosate was not obtained from the article.

No	Data requirement (indicated by the corresponding CA / CP data point number)	Author(s)	Year	Title	Source	Justification
255	CA 8.6	Carvalho L. B. et al.	2016	Plant Growth Responses of Apple and Pear Trees to Doses of Glyphosate	Planta Daninha (2016), Vol. 34, No. 4, pp. 815	5.4.1 case b) Relevant but supplementary information: Study investigates the impact of spraying apple and pear saplings at rates up to 720 g/ha and assesses effects on yield. Spraying of sapling trees directly is not on the GAP table as a use, so whilst they may inform on the potential risk via drift, endpoint considered relevant to EU level risk assessment. The endpoints were not established using a test guideline considered relevant to EU renewal.
271	CA 8.6	Claassens A. et al.	2019	Soilborne glyphosate residue thresholds for wheat seedling metabolite profiles and fungal root endophyte colonisation are lower than for biomass production in a sandy soil.	Plant and Soil (2019), Vol. 438, No. 1/2, pp. 393	5.4.1 case b) Relevant but supplementary information: Presented information on effects of glyphosate on seedling emergence and soil fungi, but no specific endpoints are presented that could be used for the renewal ecotoxicological risk assessment.
354	CA 8.6	Helander M. et al.	2019	Glyphosate residues in soil affect crop plant germination and growth.	Scientific reports (2019), Vol. 9, No. 1, pp. 19653	5.4.1 case b) Relevant but supplementary information: The study presents endpoints that may be considered relevant to a risk assessment, however, the test design does not reflect the seedling emergence study required as part of the data requirements.
385	CA 8.6	Kennedy E. et al.	2012	Herbiciding Phragmites australis: effects on litter decomposition, microbial biomass, and macroinvertebrate communities.	Fundamental and Applied Limnology (2012), Vol. 180, No. 4, pp. 309	5.4.1 case b) Relevant but supplementary information: This paper provides information that is considered relevant to the biodiversity.
433	CA 8.6	Lin JingWen et al.	2015	Toxic effect of glyphosate on seed germination and seedling growth of Chinese fir.	Acta Agriculturae Universitatis Jiangxiensis (2015), Vol. 37, No. 5, pp. 843	5.4.1 case b) Relevant but supplementary information: The study was not conducted to GLP, but it is well documented although no relevant guidelines have been followed. The authors state that the seed germination rate as well as the root length, stem length, leaf length and fresh weight of seedlings decreased significantly with the increase of glyphosate and the root length was more sensitive to glyphosate than other indexes. It was concluded that there is an inhibitory effect of glyphosate on Chinese fir seeds and seedlings, which led to antioxidant enzyme dysfunction, oxidative damage of cells and reduced chlorophyll synthesis. No analytical verification of the test item concentrations was performed, and the findings do not generate endpoints relevant to the regulatory risk assessment of glyphosate.
500	CA 8.6	Panettieri M. et al.	2013	Glyphosate effect on soil biochemical properties under conservation tillage	Soil & tillage research (2013), Vol. 133, pp. 16	5.4.1 case b) Relevant but supplementary information: The paper describes different tillage techniques following use of glyphosate and the impact on soil properties. Not relateable directly to risk assessment for renewal but may be useful in the biodiversity and benefits discussions.
516	CA 8.6	Piotrowicz-Cieslak A. I. et al.	2010	Different Glyphosate Phytotoxicity of Seeds and Seedlings of Selected Plant Species.	Polish Journal of Environmental Studies (2010), Vol. 19, No. 1, pp. 123	5.4.1 case b) Relevant but supplementary information: Study to compare the effect of glyphosate on plant growth parameters of 6 plant species.

No	Data requirement (indicated by the corresponding CA / CP data point number)	Author(s)	Year	Title	Source	Justification
562	CA 8.6	Schwan-Stoffel A. V. et al.	2012	The effect of herbicides on the germination of urediniospores of Phakopsora Pachyrhizi SYD. & P. SYD. Original Title: Germinacao de Phakopsora Pachyrhizi SID. & P. SID. Sob diferentes herbicidas.	Arquivos do Instituto Biologico Sao Paulo (2012), Vol. 79, No. 3, pp. 381	5.4.1 case b) Relevant but supplementary information: Study describes the impacts of glyphosate on germination of plant pathogen spores.
259	CA 8.6.2	Cavusoglu K. et al.	2011	Investigation of toxic effects of the glyphosate on Allium cepa.	Tarim Bilimleri Dergisi (2011), Vol. 17, No. 2, pp. 131	5.4.1 case b) Relevant but supplementary information: Glyphosate products were used in the study. Impact on seed germination and root growth.
365	CA 8.6.2	Jain S. et al.	2012	Herbicidal action on germination, amylase activity and gibberellin level in Cajanus cajan (L.).	Bioscience Discovery Journal (2012), Vol. 3, No. 2, pp. 232	5.4.1 case b) Relevant but supplementary information: The study was not conducted to GLP and the test substance source and identity could not be verified. The study has not been conducted according to a recognized test guideline and there are no validity criteria presented. The authors state that glyphosate affects the level of gibberellin and amylase activity, as well as causing the food reserve content of seedlings to decrease gradually with increase in concentration. However, given the lack of standard guidelines, unclear experimental design and approach, test substance and dose rates not sufficiently being reported as well as challenges in interpreting the study results, make reaching any reliable conclusions from the study quite challenging.
552	CA 8.6.2	Salgado T. P. et al.	2011	Initial symptoms of Eucalyptus intoxication by glyphosate rates applied on the stem or leaves. Sintomas da intoxicacao inicial de Eucalyptus proporcionados por subdoses de glyphosate aplicadas no caule ou nas folhas.	Planta Daninha (2011), Vol. 29, No. 4, pp. 913	5.4.1 case b) Relevant but supplementary information: Effects on eucalyptus seedlings after application of glyphosate (Roundup Original, 360 g a.e./L). Spraying the aerial part of the plants (trials 3 and 4). Plant BBCH stage unclear (hight at start of application: 40/ 69 cm). No biological results for control or any test concentration reported in tables. Therefore the results cannot be reproduced. No results in values which can be used for the risk assessment.
612	CA 8.6.2	Truta E. et al.	2011	Evaluation of Roundup-induced toxicity on genetic material and on length growth of barley seedlings.	Acta biologica Hungarica (2011), Vol. 62, No. 3, pp. 290	5.4.1 case b) Relevant but supplementary information: Impact of glyphosate product on barley seedling development. Unclear how endpoint could be used in risk assessment.
280	CA 8.7	Damgaard C. et al.	2014	The effect of glyphosate on the growth and competitive effect of perennial grass species in semi-natural grasslands.	Journal of environmental science and health. Part. B, Pesticides, food contaminants, and agricultural wastes (2014), Vol. 49, No. 12, pp. 897	5.4.1 case b) Relevant but supplementary information: Not directly relevant to Ecotox risk assessment, but maybe used in biodiversity discussion.

No	Data requirement (indicated by the corresponding CA / CP data point number)	Author(s)	Year	Title	Source	Justification
309	CA 8.7	Druart C. et al.	2011	Glyphosate and glufosinate-based herbicides: fate in soil, transfer to, and effects on land snails	Journal of soils and sediments (2011), Vol. 11, No. 8, pp. 1373	5.4.1 case b) Relevant but supplementary information: The material and methods part lack some important information. The test design for the exposure of snails to treated food is not specified and thus the intake dose per snail is unclear. Furthermore, the application of the test solutions into the soil is not reported and an even distribution cannot be confirmed. Nevertheless a chemical analysis of the soil during exposure was performed. As the biological data does not report results as an endpoint useful for the risk assessment, the study is not done to a guideline and is non-GLP and can be considered as supplementary only.
313	CA 8.7	Emmanuel L. D. A. et al.	2015	Effect of glyphosate on Bacillus megaterium with reference to tea ecosystem.	International Journal of Tea Science (2015), Vol. 11, No. 3/4, pp. 16	5.4.1 case b) Relevant but supplementary information: Endpoints are not releateable to an EU ecotox risk assessment, but may inform on discussions over community level effects in soil.
364	CA 8.7	Jacques M. T. et al.	2019	Reprotoxicity of glyphosate-based formulation in Caenorhabditis elegans is not due to the active ingredient only.	Environmental pollution (2019), Vol. 252, No. Pt B, pp. 1854	5.4.1 case b) Relevant but supplementary information: The toxicity of glyphosate (glyphosate in monoisopropylamine salt) and its commercial formulation Termifin - Dexter Latina to the nematode Caenorhabditis elegans was investigated. Reproductive capacity was evaluated by means of brood size. The material and methods section lack some important information. The preparation of the test solutions and application of the test item are not described. Test concentrations, controls and loading per replicate are not specified and therefore not verifiable. Description of exposure throughout the study is also missing. The formulation used is not the representative formulation for the renewal. Furthermore, no useful endpoint for the regulatory risk assessment of terrestrial organisms can be derived.
533	CA 8.7	Ranganathaswamy M. et al.	2012	Evaluation of toxicity of agrochemicals on Trichoderma isolates in vitro.	Journal of Biological Control (2012), Vol. 26, No. 4, pp. 391	5.4.1 case b) Relevant but supplementary information: The form of glyphosate used in the experiments cannot be confirmed. Fungal growth inhibition is not part of the specific ecotox risk assessment for the renewal.
297	CA 8.9	Dennis P. G. et al.	2018	The effects of glyphosate, glufosinate, paraquat and paraquat-diquat on soil microbial activity and bacterial, archaeal and nematode diversity	Scientific Reports (2018), Vol. 8, pp. 1	5.4.1 case b) Relevant but supplementary information: Nematode abundance is not an endpoint used in Ecotox risk assessment. However, these data are considered relevant to soil community effects based on single applications. Article is considered supplementary, as the approach used is not a recognised approach for ecotox risk assessment.
528	CA 8.9	Rahman F. et al.	2019	Evaluation of Glyphosate Levels in Sediments of Milky Stork Foraging Areas in Kuala Gula Bird Sanctuary, Perak, Malaysia.	Pertanika Journal of Tropical Agricultural Science (2019), Vol. 42, No. 3, pp. 995	5.4.1 case b) Relevant but supplementary information: Considered relevant but supplemental as this relates to biodiversity irrespective of not deriving from an EU country.

No	Data requirement (indicated by the corresponding CA / CP data point number)	Author(s)	Year	Title	Source	Justification
570	CP 10.3.2	Siddhapara M. R. et al.	2012	Toxicity of some commonly used insecticides/herbicides on Zygogramma bicolorata Pallister (Coleoptera: Chrysomelidae).	Journal of Biological Control (2012), Vol. 26, No. 3, pp. 251	5.4.1 case b) Relevant but supplementary information: The source of the beetles used was not adequately described. The source and purity of the glyphosate test substance was not described, preventing confirmation ofthe exposure concentrations used in the test. There was insufficient description of the test system to enable comparison with existing test guidelines to establish acceptability of the approach used. Analytical verification of the exposure concentrations was not performed. No endpoint can be derived from the study. The sudy is considered as supplementary only.

Table 35: Relevant but supplementary (category B) articles after detailed assessment: sorted by author(s)

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
180	Abdulkareem S. I. et al.	CA 8.2.8	2015	Histopathological effects of lethal and sub-lethal concentrations of glyphosate on gills and liver of African catfish, Clarias gariepinus.	Journal of Aquatic Sciences (2015), Vol. 30, No. 1, pp. 53	5.4.1 case b) Relevant but supplementary information: Although blood, gill and liver enzyme levels are not relatable to an EU level ecotoxicological risk assessment for Annex I renewal purposes, the study was considering acute effects and chronic sublethal effects on fish following exposure to glyphosate. The study has not been conducted according to a recognised test guideline and there are no validity criteria presented. The environmental holding conditions (water quality) for the fish prior to and during the study were not included. The fish loading rate (g/fish L) was 20.5 g fish/L, which far exceeds the loading rate required for chronic static renewal fish tests. The typical loading rates for studies submitted to support regulatory submission for Annex I renewals in the EU are 0.8 to 1.0 g fish/L. The impact of such high fish densities cannot be established, as no water quality measurements were included in ther paper, such as the dissolved oxygen levels (mgO2/L) and pH values. There was no test substance information presented, glyphosate concentrations were not measured / confirmed during the 28 day study duration. Behavioural observations in test vessels could not be related to the nominal exposure concentration. Finally, there were no quantifiable endpoints presented in the paper, considered applicable to an EU level ecotoxicological risk assessment for renewal purposes.
181	Abdulkareem S. I. et al.	CA 8.2.8	2013	Effects of sub-lethal concentrations of glyphosate on behaviour and some biochemical parameters of African catfish (Clarias gariepinus)	Proceedings of the 28th annual conference of the Fisheries Society of Nigeria (2013), pp. 188	5.4.1 case b) Relevant but supplementary information: Although blood, gill and liver enzyme levels are not relatable to an EU level ecotoxicological risk assessment the renewal purposes, the study was considered as supplemental due to the sublethal effects on fish behaviour following exposure to glyphosate. The study has not been conducted according to a recognised test guideline and there are no validity criteria presented. The fish species and their origin are not described and environmental conditions (water quality) for the fish prior to and during the study have not been included. The fish loading rate (g/fish L test medium) was 20.5 g fish/L, which far exceeds the loading rate required for chronic static renewal fish tests typically required for studies submitted to support regulatory submission for renewals in the EU (0.8 to 1.0 g fish/L). The impact of such high fish densities cannot be established, as no water quality measurements were provided such as levels of dissolved oxygen (mgO2/L) and pH. Similarly, there was no test substance information or rationale presented for the selection of exposure concentrations. glyphosate concentrations were also not measured / confirmed during the 28 day study duration. Behavioural observations relating to the swimming activity are not relatable to the nominal exposure

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
						concentration. Finally, there are no applicable EU level ecotoxicological risk assessment quantifiable endpoints presented in the paper.
182	Abou-Amer W. L. et al.	CA 5.6	2010	Teratological effects induced by three pesticides in pregnant rats	Alexandria Journal of Pharmaceutical Sciences (2010), Vol. 24, No. 1, pp. 21	5.4.1 case b) Relevant but supplementary information: Supportive only: Study is done with pesticide formulations with only one dose per pesticide treatment group established. The study contains unsufficient data, therefore supplementary only.
183	Acquavella J. et al.	CA 5.5	2018	Corrigendum to: Glyphosate epidemiology expert panel review: a weight of evidence systematic review of the relationship between glyphosate exposure and non-Hodgkin's lymphoma or multiple myeloma.	Critical Reviews in Toxicology (2018), Vol. 48, No. 10, pp. 898	5.4.1 case b) Relevant but supplementary information: Corrigendum to Acquavella et al._2016, Critical Reviews in Toxicology (2016), Vol. 46, sup1, pp. 28-43.
184	Acquavella J. et al.	CA 5.9.4	2016	Glyphosate epidemiology expert panel review: a weight of evidence systematic review of the relationship between glyphosate exposure and non-Hodgkin's lymphoma or multiple myeloma.	Critical reviews in toxicology (2016), Vol. 46, No. sup1, pp. 28	5.4.1 case b) Relevant but supplementary information: review, secondary source.
185	Adams R. D. et al.	CA 5.9.5	2013	The NPIS Pesticide Surveillance Project - Eye contact with pesticides: Circumstances of exposure and toxicity.	Clinical Toxicology (2013), Vol. 51, No. 4, pp. 353	5.4.1 case b) Relevant but supplementary information: This is a report describing ocular exposures to pesticides. Formulated glyphosate is expected to cause moderate conjunctivitis & irritation when the eye is exposed due to the surfactant. This should not impact re-registration.
186	Agbon A. O. I. et al.	CA 8.2.8	2014	The potential impact of Glyphosate on captured fisheries productivity and sustainability	Proceedings of the 29th annual conference of the Fisheries Society of Nigeria (2014), pp. 17	5.4.1 case b) Relevant but supplementary information: The study was not conducted according to a recognised acute test guideline and there are no validity criteria presented. The overall study duration was 35 days, from which a 96 hr LC50 value was determined. There are no data presented in the paper in terms of mortalities over the first 4 days from which a 96 hr LC50 could be determined. The fish also appear to have been fed for the 35 day duration, which is not in accordance with the recognised acute fish toxicity test guideline used according to the EU No. 283 2013 data requirements. The environmental holding conditions (water quality) for the fish prior to and during the study were not included. The fish loading rate (g/fish L) cannot be determined as no test vessel water volumes are presented. There are no water quality measurements included in ther paper, such as the dissolved oxygen levels (mgO2/L) and pH values. There was no test substance information presented, glyphosate concentrations were not measured / confirmed during the 35 day study duration. No sub-lethal behavioural observations were included in the paper. Finally, the presented endpoints cannot be confirmed from the presented information in the paper. The study is considered unreliable.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
187	Aguilar-Dorantes K. et al.	CA 8.6	2015	Glyphosate Susceptibility of Different Life Stages of Three Fern Species	American fern journal (2015), Vol. 105, No. 3, pp. 131	5.4.1 case b) Relevant but supplementary information: Considered supplementary as species not relateable to an EU level risk assessment for Annex I renewal.
188	Ahmed A. A. et al.	CA 7.1.3.1.1	2018	Unravelling the nature of glyphosate binding to goethite surfaces by ab initio molecular dynamics simulations.	Physical chemistry chemical physics (2018), Vol. 20, No. 3, pp. 1531	5.4.1 case b) Relevant but supplementary information: Explores possible binding mechanisms for glyphosate with three goethite surface planes (010, 001, and 100) in the presence of water. Supplementary and not directly relevant to EU risk assessment.
334	Ait Bali Y. et al.	CA 5.8	2017	Behavioral and Immunohistochemical Study of the Effects of Subchronic and Chronic Exposure to Glyphosate in Mice.	Frontiers in behavioral neuroscience (2017), Vol. 11, pp. 146	5.4.1 case b) Relevant but supplementary information: Formulation tested (Roundup, 486 g/L isopropylamine salt, 360 g/L a.e.) in vivo.
190	Alexa E. et al.	CA 7.1.2.1.1	2010	Research on the weed control degree and glyphosate soil biodegradation in apple plantations (Pioneer variety).	Analele Universitatii din Oradea, Fascicula Biologie (2010), Vol. 17, No. 1, pp. 5	5.4.1 case b) Relevant but supplementary information: Only glyphosate mineralization analyzed (measurement of 14CO2), no details on soil characteristics or experimental set-up reported.
191	Alhewairini S. S.	CA 8.2.4	2017	Toxicity of the herbicide glyphosate to non-target species Caenorhabditis elegans.	Journal of Food, Agriculture & Environment (2017), Vol. 15, No. 2, pp. 97	5.4.1 case b) Relevant but supplementary information: The study has not been conducted according to a recognised test guideline and there are no validity criteria presented. The generated endpoints are not based on direct effects on the nematode, but instead, are based on the optical density related to the density of bacteria present in the NGM ajar test cultures. It is unclear if the presented mortality data were due to direct effects of glyphosate in the cultures, or due to indirect effects associated with reduced feeding activity. There was no test substance information presented and glyphosate concentrations were not measured / confirmed during the study. Finally, there were no quantifiable endpoints presented in the paper, that would be considered applicable to an EU level ecotoxicological risk assessment.
192	Alishahi M. et al.	CA 8.2.1	2019	Comparative toxicities of five herbicides on nauplii of Artemia franciscana as an ecotoxicity bioindicator.	IRANIAN JOURNAL OF FISHERIES SCIENCES (2019), Vol. 18, No. 4, pp. 716	5.4.1 case b) Relevant but supplementary information: The material and methods section lack some important information. OECD standard methods were mentioned in the publication; however, the test guideline or specific validity criteria were not specified. Furthermore, information on preparation, application of the test item or exposure conditions are missing. No results for the control group are available to put the biological effects in context. Also no mortality results for all treatment group are given. At the end of the test, an endpoint was derived, but further statistical information (assessment of statistical power, confidence intervals) are not stated. Furthermore, there was no analytical verification of test concentrations reported. The study is considered unreliable.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
193	Alishahi M. et al.	CA 8.2.1	2016	Acute toxicity evaluation of five herbicides: paraquat, 2,4-dichlorophenoxy acetic acid (2,4-D), trifluralin, glyphosite and atrazine in Luciobarbus esocinus fingerlings.	Iranian Journal of Veterinary Medicine (2016), Vol. 10, No. 4, pp. 319	5.4.1 case b) Relevant but supplementary information: Although the study was stated to have been conducted according to a recognised test guideline (OECD 203), no validity criteria was presented. The selected fish species and their approximate origin are described but environmental holding conditions (water quality) for the fish handling prior to and during the study were not included. There was limited test substance information presented, with no rationale presented for the selection of exposure concentrations. glyphosate concentrations were also not measured/confirmed during the evaluation period. Behavioural observations relating to the lethargy and swimming behaviour are not considered directly relatable to the nominal exposure concentration. The study is considered unreliable.
194	Alleva R. et al.	CA 5.8.2	2018	Mechanism underlying the effect of long-term exposure to low dose of pesticides on DNA integrity.	Environmental Toxicology (2018), Vol. 33, No. 4, pp. 476	5.4.1 case b) Relevant but supplementary information: Purity and source not reported. No positive control. Only one or two concentrations of glyphosate were tested. Comparisons are to untreated cells rather than negative controls. The reliability of the study is unassignable.
195	Allison J. E. et al.	CA 8.6	2013	Influence of soil organic matter on the sensitivity of selected wild and crop species to common herbicides.	Ecotoxicology ((2013), Vol. 22, No. 8, pp. 1289	5.4.1 case b) Relevant but supplementary information: Soils with a modified nutrient status were used which is not a requirement for the studies conducted to support the renewal in the EU.
196	Alvarez-Moya C. et al.	CA 5.4	2014	Comparison of the in vivo and in vitro genotoxicity of glyphosate isopropylamine salt in three different organisms.	Genetics and molecular biology (2014),Vol. 37, No. 1, pp. 105	5.4.1 case b) Relevant but supplementary information: Mechanistic study without clear relevance for the risk assessment.
197	Amaral M. J. et al.	CA 8.1.4	2012	The use of a lacertid lizard as a model for reptile ecotoxicology studies - Part 1 Field demographics and morphology	Chemosphere (2012), Vol. 87, No. 7, pp. 757	5.4.1 case b) Relevant but supplementary information: This study reports results from a long term population monitoring study. The endpoints are such that it difficult to relate to an ecotox risk assessment for Annex I reneweal purposes, but is supportive from a population level perspective.
198	Andreotti G. et al.	CA 5.8.2	2012	The interaction between pesticide use and genetic variants involved in lipid metabolism on prostate cancer risk	Journal of Cancer Epidemiology (2012), Article ID 358076, pp 1	5.4.1 case b) Relevant but supplementary information: Mechanism of measuring toxicity is not data requirement of (EC) 1107/2009; performed in a non-relevant test model.
199	Anifandis G. et al.	CA 5.8.2	2018	The effect of glyphosate on human sperm motility and sperm DNA fragmentation	International Journal of Environmental Research and Public Health (2018), Vol. 15, No. 6, pp. 1117/1	5.4.1 case b) Relevant but supplementary information: The glyphosate used is not characterized, only one test concentration was used, no positive control was considered and the results obtained are not corroborated by in vivo regulatory reproductive toxicology studies with much higher systemic levels of glyphosate. This publication is considered unreliable.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
200	Anon.	CA 5.5	2018	Expression of Concern (26 September 2018): An Independent Review of the Carcinogenic Potential of Glyphosate.	Critical Reviews in Toxicology (2018), Vol. 48, No. 10, pp. 981	5.4.1 case b) Relevant but supplementary information: Expression of concern regarding articles Williams et al_2016, Crit Rev Toxicol (2016), 46(S1):3-20 and Solomon et al._2016, Crit Rev Toxicol (2016), 46(S1):21-27 and Acquavella et al_2016, Crit Rev Toxicol (2016), 46(S1):28-43 and Willliams et al._2016, Crit Rev Toxicol (2016), 46(S1):44-55. and Brusick et al_2016, Crit Rev Toxicol (2016), 46(S1):56-74.
201	Aris A.	CA 5.9.1	2012	Response to comments from Monsanto scientists on our study showing detection of glyphosate and Cry1Ab in blood of women with and without pregnancy	Reproductive Toxicology (2012), Vol. 33, No. 1, pp. 122	5.4.1 case b) Relevant but supplementary information: Correspondence with no new data.
202	Arjo G. et al.	CA 5.5	2013	Plurality of opinion, scientific discourse and pseudoscience: an in depth analysis of the Seralini et al. study claiming that Roundup® Ready corn or the herbicide Roundup® cause cancer in rats.	Transgenic research (2013), Vol. 22, No. 2, pp. 255	5.4.1 case b) Relevant but supplementary information: Discussion providing context to a controversial retracted publication.
203	Armbruster D. et al.	CA 7.5	2019	Characterization of phosphonate-based antiscalants used in drinking water treatment plants by anion-exchange chromatography coupled to electrospray ionization time-of-flight mass spectrometry and inductively coupled plasma mass spectrometry.	Journal of chromatography A (2019), Vol. 1601, pp. 189	5.4.1 case b) Relevant but supplementary information: Article is primarily about identification of impurities in anti-scaling products used in drinking water treatment. AMPA is identified as being present in some antiscalants at concentrations from 1.9 to 157 mg/L after 10,000 fold dilution of the commercial antiscalants. Information may be used qualitatively but not directly for EU risk assessments.
204	Arroyave J. M. et al.	CA 7.1.3.1.1	2016	Effect of humic acid on the adsorption/desorption behavior of glyphosate on goethite. Isotherms and kinetics.	Chemosphere (2016), Vol. 145, pp. 34	5.4.1 case b) Relevant but supplementary information: Study of effects of humic acid (HA) on the adsorption/desorption of glyphosate (glyphosate) on goethite. Not related to efate guideline, but supplemental information on glyphosate sorption.
205	Ascolani Y. J. et al.	CA 7.2.1	2014	Abiotic degradation of glyphosate into aminomethylphosphonic acid in the presence of metals.	Journal of agricultural and food chemistry (2014), Vol. 62, No. 40, pp. 9651	5.4.1 case b) Relevant but supplementary information: The paper is about abiotic degradation of glyphosate into AMPA in the presence of metals but it does not change the risk assessment.
206	Aslam S. et al.	CA 7.1.4	2018	Mulch of plant residues at the soil surface impact the leaching and persistence of pesticides: A modelling study from soil columns.	Journal of contaminant hydrology (2018), Vol. 214, pp. 54	5.4.1 case b) Relevant but supplementary information: Model developed to predict glyphosate degradation / movement in presence of mulch. Not an EU validated model. Experimental data used to test the model were from a previous paper.
207	Aslam S. et al.	CA 7.5	2015	Effect of rainfall regimes and mulch decomposition on the dissipation and leaching of S-metolachlor and glyphosate: a soil column experiment.	Pest management science (2015), Vol. 71, No. 2, pp. 278	5.4.1 case b) Relevant but supplementary information: The study describes a soil column leaching tests with glyphosate in French soils. Glyphosate recovery from the soil column at Day 0 was only 52%. This recovery in not acceptable to draw further conclusions from the study. This publication is considered unreliable.
208	Avgerinou C. et al.	CA 5.9.4	2017	Occupational, dietary, and other risk factors for myelodysplastic syndromes in Western Greece.	Hematology (2017), Vol. 22, No. 7, pp. 419	5.4.1 case b) Relevant but supplementary information: A case-control study with non-blind interviewers results in both potential recall bias and interviewer bias. This publication is considered unreliable.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
209	Avigliano L. et al.	CA 8.2.4	2014	Effects of glyphosate on growth rate, metabolic rate and energy reserves of early juvenile crayfish, Cherax quadricarinatus M.	Bulletin of environmental contamination and toxicology (2014), Vol. 92, No. 6, pp. 631	5.4.1 case b) Relevant but supplementary information: Enzymatic endpoints discussed that are not used in EU level assessment. Mortality and survival data not discussed in paper.
210	Avila-Vazquez M. et al.	CA 5.9.4	2015	Cancer and detrimental reproductive effects in an Argentine agricultural community environmentally exposed to glyphosate. Original Title: Cancer y trastornos reproductivos en una poblacion agricola argentina expuesta a glifosato.	Journal of Biological Physics and Chemistry (2015), Vol. 15, No. 3, pp. 97	5.4.1 case b) Relevant but supplementary information: There is no glyphosate use associations quantified, confounded by multiple pesticide uses, other local industry and local sanitation questions.
211	Ayanda O. I. et al.	CA 8.2.1	2015	Acute toxicity of glyphosate and paraquat to the African catfish (Clarias gariepinus, Teugels 1986) using some biochemical indicators	Tropical zoology (2015), Vol. 28, No. 4, pp. 152	5.4.1 case b) Relevant but supplementary information: The test items were not identified, therefore it is not clear what was actually tested and to which compound the effects / results can be assigned.
212	Babalola O. O. et al.	CA 8.1.4	2018	Comparative Early Life Stage Toxicity of the African Clawed Frog, Xenopus laevis Following Exposure to Selected Herbicide Formulations Applied to Eradicate Alien Plants in South Africa.	Archives of Environmental Contamination and Toxicology (2018), Vol. 75, No. 1, pp. 8	5.4.1 case b) Relevant but supplementary information: As the composition of the Roundup used in the test cannot be confirmed, the study must be considered as being supplementary. Original roundup contains a POEA surfactant which drives the toxicity of the product.
213	Bach N. C. et al.	CA 8.1.4	2016	Effect on the growth and development and induction of abnormalities by a glyphosate commercial formulation and its active ingredient during two developmental stages of the South-American Creole frog, Leptodactylus latrans.	Environmental science and pollution research international (2016), Vol. 23, No. 23, pp. 23959	5.4.1 case b) Relevant but supplementary information: Endpoint data presented for a formulated product other than the representative formulation for the Annex I. There are data indicated for glyphosate technical material, but this material is not identified in the materials and methods.
214	Baglan H. et al.	CA 8.3	2018	Glyphosate impairs learning in Aedes aegypti mosquito larvae at field-realistic doses.	The Journal of experimental biology (2018), Vol. 221, No. 20, pp 1	5.4.1 case b) Relevant but supplementary information: Information presented on the learning behaviour of mosquito larvae exposed to glyphosate. These data are difficult to relate to an EU level ecotox risk assessment for the renewal.
215	Baier C. J. et al.	CA 5.8	2017	Behavioral impairments following repeated intranasal glyphosate-based herbicide administration in mice.	Neurotoxicology and teratology (2017), Vol. 64, pp. 63	5.4.1 case b) Relevant but supplementary information: Formulation tested via intranasal administration.
216	Balbuena M. S. et al.	CA 8.3.1.4, CP 10.3.1.4	2015	Effects of sublethal doses of glyphosate on honeybee navigation.	The Journal of experimental biology (2015), Vol. 218, No. 17, pp. 2799	5.4.1 case b) Relevant but supplementary information: Due to the foraging nature of bees in the natural environment described in this study, the effects cannot be solely attributed to glyphosate active substance. However, the impact of bees from other substances foraging during the homing flight is considered negligible as they were exposed to the test substance for 1 hour prior to release. It is a possibility and the data generated using this new experimental design, should be considered with a degree of caution. Furthermore, there is no clear indication of the dose of glyphosate that the bees were exposed to as there was no analytical verification conducted in the study. This is a new experimental design and does not provide

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
						relevant endpoints for the regulatory risk assessment of glyphosate Annex I renewal purposes. As there is no test guideline to which this study can be compared and as there is no data requirement nor approach to evaluate the findings of such a study at the regulatory level, the findings of this study should be considered with a degree of caution. The reliability assessment highlights that elements of the study may be considered reliable, but as there are no validity criteria against which this study can be assessed, nor data requirements relating to the achieved endpoints for Annex I renewal of plant protection products, the study must be considered non relevant for EU Annex I renewal purposes from an ecotoxicology risk assessment perspective.
217	Bando H. et al.	CA 5.9	2010	Extreme hyperkalemia in a patient with a new glyphosate potassium herbicide poisoning: report of a case.	The Japanese journal of toxicology (2010), Vol. 23, No. 3, pp. 246	5.4.1 case b) Relevant but supplementary information: This case report describes severe hyperkalemia in the setting of suicidal ingestion of potassium salt glyphosate formulations. This is not unexpected.
218	Bara J. J. et al.	CA 8.3	2014	Sublethal effects of atrazine and glyphosate on life history traits of Aedes aegypti and Aedes albopictus (Diptera: Culicidae).	Parasitology research (2014), Vol. 113, No. 8, pp. 2879	5.4.1 case b) Relevant but supplementary information: The test provides information on the impact of glyphosate on mosquito development, but the test design employed is not a recognised approach used for Annex I data generation for renewal purposes. Test item purity not stated, only pestanol grade. No chemical analysis.
219	Barriuso J. et al.	CA 8.6	2011	Effect of the herbicide glyphosate on the culturable fraction of glyphosate-tolerant maize rhizobacterial communities using two different growth media.	Microbes and environments (2011), Vol. 26, No. 4, pp. 332	5.4.1 case b) Relevant but supplementary information: The study was a comparison between glyphosate and Harness GTZ (pre-emergence herbicide). glyphosate (Roundup plus) was applied at appropriate concentrations (360 g/kl, 0.72 kg/ha), the study looked at the rhizobacterial communities of glyphosate tolerant maize. The study was not to any relevant guideline and did not provide an endpoint relevant to the renewal of glyphosate.
220	Bashir S. et al.	CA 5.5	2012	Final review of the Seralini et al. (2012a) publication on a 2-year rodent feeding study with glyphosate formulations and GM maize NK603 as published online on 19 September 2012 in Food and Chemical Toxicology	EFSA Journal (2012), Vol. 10, No. 11, pp. 2986	5.4.1 case b) Relevant but supplementary information: EFSA review of Seralini chronic rat study.
221	Bashir S. et al.	CA 5.5	2012	Review of the Seralini et al. (2012) publication on a 2-year rodent feeding study with glyphosate formulations and GM maize NK603 as published online on 19 September 2012 in Food and Chemical Toxicology	EFSA Journal (2012), Vol. 10, No. 10, pp. 2910	5.4.1 case b) Relevant but supplementary information: EFSA review of Seralini chronic rat study.
222	Beard J. D. et al.	CA 5.9.4	2014	Pesticide exposure and depression among male private pesticide applicators in the agricultural health study.	Environmental Health Perspectives (2014), Vol. 122, No. 9, pp. 984	5.4.1 case b) Relevant but supplementary information: No statistically significant findings for glyphosate.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
223	Beard J. D. et al.	CA 5.9.4	2013	Pesticide exposure and self-reported incident depression among wives in the Agricultural Health Study	Environmental Research (2013), Vol. 126, pp. 31	5.4.1 case b) Relevant but supplementary information: No statistically significant findings for glyphosate.
224	Belle R. et al.	CA 5.6	2012	Letter to the Editor: Toxicity of Roundup and glyphosate.	Journal of Toxicology and Environmental Health Part B Critical Reviews (2012), Vol. 15, No. 4, pp. 233	5.4.1 case b) Relevant but supplementary information: Response to Letter to the Editor, comments on Williams et al_2012, J. Toxicol. nviron. Health B Crit. Rev (2012), Vol. 15, No. 1, pp. 39-96.
225	Bento C. P. M. et al.	CA 7.1.2.1.1, CA 7.1.2.1.4	2016	Persistence of glyphosate and aminomethylphosphonic acid in loess soil under different combinations of temperature, soil moisture and light/darkness.	The Science of the total environment (2016), Vol. 572, pp. 301	5.4.1 case b) Relevant but supplementary information: Supplementary information on the rate of degradation of glyphosate and rate of formation/dissipation of AMPA in loess soil as a function of temperature, soil moisture and light/darkness.
226	Berry C.	CA 5.5	2018	The complexities of regulatory toxicology	Outlooks on Pest Management (2018), Vol. 29, No. 6, pp. 270	5.4.1 case b) Relevant but supplementary information: No new data presented.
227	Berry C.	CA 5.5	2013	Comments on "Long term toxicity of a Roundup herbicide and a Roundup-tolerant genetically modified maize".	Food and Chemical Toxicology (2013), Vol. 53, pp. 430	5.4.1 case b) Relevant but supplementary information: Letter to the Editor, Comment on Seralini et al._2012_Food Chemical Toxicol. (2012), retracted
228	Beswick E. et al.	CA 5.9	2011	Fatal poisoning with glyphosate-surfactant herbicide.	Journal of the Intensive Care Society (2011), Vol. 12, No. 1, pp. 37	5.4.1 case b) Relevant but supplementary information: This is a case of a young man who deliberately ingested glyphosate product at home and rapidly developed multi-organ failure, culminating in death. No new observations.
229	Boonsoong B. et al.	CA 8.2.4.1, CP 10.2.1	2012	Acute toxicity of Roundup and carbosulfan to the Thai fairy shrimp, Branchinella thailandensis.	Communications in agricultural and applied biological sciences (2012), Vol. 77, No. 4, pp. 431	5.4.1 case b) Relevant but supplementary information: The study was not conducted according to a recognised test guideline and no validity criteria are presented for control group performance, so the robustness of the assay can not be concluded. In the materials and methods, there is insufficient information presented on the test medium preparation approach and on the environmental conditions used in the test. There was no chemical analysis and therefore exposure cannot be confirmed. There are insufficient explanations provided on the experimental design, particularly environmental condition and conduct during the test. The study is considered unreliable.
230	Bortoli P. V. et al.	CA 8.5	2012	Effects of glyphosate on microbial community structure and activity in two soils under olive plantations. Original Title: Efectos del herbicida glifosato sobre la estructura y el funcionamiento de comunidades microbianas de dos suelos de plantaciones de olivo.	Ecologia Austral (2012), Vol. 22, No. 1, pp. 33	5.4.1 case b) Relevant but supplementary information: Paper presents information on the effects of glyphosate on respiration but the approaches used do not result in endpoints that can be used in an EU level risk assessment as they are based on Argentinian soils.
231	Bosak A. B. et al.	CA 5.9.5	2014	Clinical presentations with different glyphosate-containing herbicides.	Journal of Medical Toxicology (2014), Vol. 10, No. 1, pp. 72	5.4.1 case b) Relevant but supplementary information: This is a report about multi-organ failure after suicidal ingestion of formulated glyphosate and should not impact re-registration.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
232	Bott S. et al.	CA 8.6	2011	Phytotoxicity of glyphosate soil residues re-mobilised by phosphate fertilisation	Plant and soil (2011), Vol. 342, No. 1-2, pp. 249	5.4.1 case b) Relevant but supplementary information: Roundup ultra max (360 g/L, applied up to 4.8 mg ae/kg soil), study looked at the impact of phosphate and glyphosate competition in the soil and subsequent availability of NTTP and impact on soil characteristics (in different soil types) to soybean growth. AMPA is also considered in the article. However, a regulatory endpoint suitable for the renewal of glyphosate was not obtained from the article.
233	Boye K. et al.	CA 7.5	2019	Long-term data from the swedish national environmental monitoring program of pesticides in surface waters	Journal of Environmental Quality (2019), Vol. 48, pp. 1109	5.4.1 case b) Relevant but supplementary information: Describes pesticide analysis data and pesticide use information available for 4 small watersheds in Sweden. Data is available elsewhere but article provides a description of methodology and sources for data.
234	Braun C. et al.	CA 7.5	2013	The load from rail wastewater. Emissions of micropollutants from rail traffic into the watershed	Aqua & Gas (2013), Vol. 93, No. 7/8, pp. 40	5.4.1 case b) Relevant but supplementary information: No new glyphosate water concentrations are presented. Using worst-case measured values, glyphosate concentrations are predicted in various size flowing water bodies.
235	Brennan J. C. et al.	CA 5.8.3	2016	Development of a recombinant human ovarian (BG1) cell line containing estrogen receptor α and β for improved detection of estrogenic/antiestrogenic chemicals	Environmental Toxicology and Chemistry (2016), Vol. 35, No. 1, pp. 91	5.4.1 case b) Relevant but supplementary information: Limited data on glyphosate.
236	Brock A. L. et al.	CA 7.2.2.3	2019	Microbial Turnover of Glyphosate to Biomass: Utilization as Nutrient Source and Formation of AMPA and Biogenic NER in an OECD 308 Test.	Environmental science & technology (2019), Vol. 53, No. 10, pp. 5838	5.4.1 case b) Relevant but supplementary information: Uses data from another study (Wang, 2016) to test model to predict glyphosate mineralisation, degradation, and incorporation into non-extractable residues. Not directly relevant to EU risk assessment.
237	Brunetti R. et al.	CA 5.9.5	2019	Electrocardiographic abnormalities associated with acute glyphosate toxicity.	HeartRhythm Case Rep. (2020), Vol. 6, pp. 63	5.4.1 case b) Relevant but supplementary information: This article claims that dermal exposure to a small amount of glyphosate led to cardiac arrhythmia and claims that the patient developed a Brugada syndrome & long Qt syndrome after exposure. The measured QTC in a wide-complex tracing is uninterpretable. Brugada syndrome is largely due to sodium channel block in cardiac myocytes, LQT syndrome is largely due to potassium channel block in the cardiac myoctyes. Glyphosate does neither. Moreover, glyphosate is not dermally absorbed and multiple GLP studies have shown that glyphosate is not cardiotoxic.
238	Brusick D. et al.	CA 5.4	2016	Genotoxicity Expert Panel review: weight of evidence evaluation of the genotoxicity of glyphosate, glyphosate-based formulations, and aminomethylphosphonic acid.	Critical reviews in toxicology (2016), Vol. 46, No. sup1, pp. 56	5.4.1 case b) Relevant but supplementary information: review, secondary source.
239	Brusick D. et al.	CA 5.5	2018	Corrigendum to: Genotoxicity Expert Panel review: weight of evidence evaluation of the genotoxicity of glyphosate, glyphosate-based formulations, and aminomethylphosphonic acid.	Critical Reviews in Toxicology (2018), Vol. 46, No. 10, pp 902	5.4.1 case b) Relevant but supplementary information: Corrigendum to Brusick et al._2016, Critical Reviews in Toxicology (2016), Vol. 46, sup1, pp. 56-74

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
240	Burstyn I. et al.	CA 5.5	2017	Visualizing the heterogeneity of effects in the analysis of associations of multiple myeloma with glyphosate use. comments on sorahan, t. multiple myeloma and glyphosate use: A re-analysis of us agricultural health study (AHS) data.	International Journal of Environmental Research and Public Health (2017), Vol. 14, No. 1, pp. 1	5.4.1 case b) Relevant but supplementary information: Re-analysis of old data, no statistically significant glyphosate findings. A re-analysis of US agricultural health study (AHS) data. Int. J. Environ. Res. Public Health (2015), Vol. 12, pp. 1548
241	Bus J. S.	CA 5.5	2017	IARC use of oxidative stress as key mode of action characteristic for facilitating cancer classification: Glyphosate case example illustrating a lack of robustness in interpretative implementation.	Regulatory toxicology and pharmacology (2017), Vol. 86, pp. 157	5.4.1 case b) Relevant but supplementary information: review, secondary source.
242	Bus J. S.	CA 5.9.2	2015	Analysis of Moms Across America report suggesting bioaccumulation of glyphosate in U.S. mother's breast milk: Implausibility based on inconsistency with available body of glyphosate animal toxicokinetic, human biomonitoring, and physico-chemical data.	Regulatory toxicology and pharmacology (2015), Vol. 73, No. 3, pp. 758	5.4.1 case b) Relevant but supplementary information: review, secondary source.
243	Caballero M. et al.	CA 5.9.4	2018	Estimated Residential Exposure to Agricultural Chemicals and Premature Mortality by Parkinson's Disease in Washington State.	International journal of environmental research and public health (2018), Vol. 15, No. 12, pp. 1	5.4.1 case b) Relevant but supplementary information: Unproven exposure. Uncertain temporal relationship between purported exposure and the health outcome. Appropriate design would evaluate exposure or non-exposure from Parkinson’s diagnosis and compare length of survival by exposure category.
244	Caganova B. et al.	CA 5.9.5	2017	Caustic effects of chemicals: risk factors for complications and mortality in acute poisoning	Monatshefte fuer Chemie (2017), Vol. 148, No. 3, pp. 497	5.4.1 case b) Relevant but supplementary information: This article discusses caustic injury in suicide attempts and therefore should not impact registration decisions.
245	Caganova B. et al.	CA 5.9.5	2017	Caustic ingestion in the elderly: influence of age on clinical outcome	Molecules (2017), Vol. 22, No. 10, pp. 1726/1	5.4.1 case b) Relevant but supplementary information: This article compares outcomes of caustic ingestions in young to elderly patients and it demonstrates that there is a higher mortality in the older group. Glyphosate is mentioned in a table where there were 9 ingestions with no fatalities in the younger group and 2 fatalities in the elderly. This article discusses suicidal ingestions of caustic substances and should therefore not impact re-registration.
246	Cai W. et al.	CA 5.6	2017	Effects of glyphosate exposure on sperm concentration in rodents: A systematic review and meta-analysis.	Environmental toxicology and pharmacology (2017), Vol. 55, pp. 148	5.4.1 case b) Relevant but supplementary information: Re-evaluation of pooled literature data.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
247	Cai W. et al.	CA 5.9.4	2020	Correlation between CYP1A1 polymorphisms and susceptibility to glyphosate-induced reduction of serum cholinesterase: A case-control study of a Chinese population.	Pesticide biochemistry and physiology (2020), Vol. 162, pp. 23	5.4.1 case b) Relevant but supplementary information: Untenable assumption for the genetic analyses: that ChE depression (viz., case status) is related to glyphosate. Note that ChE depression is not more likely among those with longest glyphosate employment tenure. Adequate description of study population is uncertain. Selection process not clearly described. Adequate description of exposure circumstances is uncertain. Description of workplaces lacking. Subjects could have worked primarily in producing raw materials. This publication is considered unreliable.
248	Caloni F. et al.	CA 5.8	2016	Suspected poisoning of domestic animals by pesticides.	The Science of the total environment (2016), Vol. 539, pp. 331	5.4.1 case b) Relevant but supplementary information: Review article on domestic animal poisonings by pesticides.
249	Campuzano C. et al.	CA 5.9.2	2017	Efectos de la intoxicacion por glifosato en la poblacion agricola: revision de tema	Revista CES Salud Publica (2017), Vol. 8, No. 1, pp. 121	5.4.1 case b) Relevant but supplementary information: This article claims that occupational exposure to glyphosate formulations is associated with multi-organ toxicity via suicidal ingestions and a literature review to support their claim. In suicide attempts, glyphosate based formulations are known to cause caustic injury leading to multi-organ failure. However, occupational exposures do not, nor do they lead to chronic long term effects. The Ag Health Study from 2005 & 2018 demonstrate no evidence of carcinogenicity. The Farm Family Exposure Study shows that there is minimal absorption of glyphosate in the occupational setting.
250	Carbajal-Lopez Y. et al.	CA 5.4	2016	Biomonitoring of agricultural workers exposed to pesticide mixtures in Guerrero state, Mexico, with comet assay and micronucleus test	Environmental Science and Pollution Research (2016), Vol. 23, No. 3, pp. 2513	5.4.1 case b) Relevant but supplementary information: No glyphosate specific conclusions, confounded due to multiple pesticide uses.
251	Carles L. et al.	CA 7.5	2019	Meta-analysis of glyphosate contamination in surface waters and dissipation by biofilms.	Environment international (2019), Vol. 124, pp. 284	5.4.1 case b) Relevant but supplementary information: High phosphorus concentrations in surface water can reduce complete glyphosate degradation by biofilms and favour the accumulation of AMPA in river water.
252	Carrasco A. E.	CA 8.1.5	2011	Reply to the letter to the editor regarding our article (Paganelli et al., 2010).	Chemical research in toxicology (2011), Vol. 24, No. 5, pp. 610	5.4.1 case b) Relevant but supplementary information: Letter to the Editor, Reply to Paganelli et al., 2010, Paganelli et al. Chem. Res. Toxicol (2010), Vol. 23, pp. 1586-1595.
253	Carretta L. et al.	CA 7.1.4	2019	A new rapid procedure for simultaneous determination of glyphosate and AMPA in water at sub µg/L level.	Journal of chromatography. A (2019), Vol. 1600, pp. 65	5.4.1 case b) Relevant but supplementary information: Analytical method. Analyzed runoff samples from the Po River Valley in Italy. Only ranges of values provided not individual values. Indicates glyphosate concentrations are lower in the presence of a buffer strip than without buffer strip.
254	Carroll R. et al.	CA 5.9.5	2012	Diurnal variation in probability of death following self-poisoning in Sri Lanka--evidence for chronotoxicity in humans.	International journal of epidemiology (2012), Vol. 41, No. 6, pp. 1821	5.4.1 case b) Relevant but supplementary information: This article discusses the concept of chronotoxicity in overdoses. They found no evidence of circadian effects on glyphosate overdoses. This article discusses suicidal ingestions and therefore should not impact registration decisions.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
255	Carvalho L. B. et al.	CA 8.6	2016	Plant Growth Responses of Apple and Pear Trees to Doses of Glyphosate	Planta Daninha (2016), Vol. 34, No. 4, pp. 815	5.4.1 case b) Relevant but supplementary information: Study investigates the impact of spraying apple and pear saplings at rates up to 720 g/ha and assesses effects on yield. Spraying of sapling trees directly is not on the GAP table as a use, so whilst they may inform on the potential risk via drift, endpoint considered relevant to EU level risk assessment. The endpoints were not established using a test guideline considered relevant to EU renewal.
256	Castilhos R. V. et al.	CA 8.3	2014	Selectivity of pesticides used in peach orchards on eggs and pupae of the predator Chrysoperla externa. Seletividade de agrotoxicos utilizados em pessegueiro sobre ovos e pupas do predador Chrysoperla externa.	Ciencia Rural (2014), Vol. 44, No. 11, pp. 1921	5.4.1 case b) Relevant but supplementary information: The glyphosate product was concluded to be harmless to Chrysoperla and Chrysoperla eggs and pupae. The study was not conducted according to GLP and the study design lacks some details compared with relevant guidelines. The test concentrations are based on nominal values and no analytical verification of test item concentrations was conducted. Although the test design is described in quite some detail, some important information is missing, i.e. regarding the source and content of the applied products, the application of test item and control data are not shown for all parameters. Additionally, according to IOBC/WPRC larval stages should be exposed. As the study is based on a glyphosate product, the toxicity of glyphosate active substance alone is unknown and therefore endpoints generated from this study are not quantifiable and deliver only supplementary information.
257	Castilhos R. V. et al.	CA 8.3.2, CP 10.3.2	2011	Selectivity of pesticides used in peach orchard on adults of Chrysoperla externa (Hagen, 1861) (Neuroptera: Chrysopidae). Original title: Seletividade de agrotoxicos utilizados em pomares de pessego a adultos do predador Chrysoperla externa (Hagen, 1861) (Neuroptera: Chrysopidae).	Revista Brasileira de Fruticultura (2011), Vol. 33, No. 1, pp. 73	5.4.1 case b) Relevant but supplementary information: Roundup (and many other pesticides) were used as the test substance. Only mortality of lacewing were assessed. Likewise no reproduction endpoints were evaluated and thus no data is relevant to the risk assessment.
258	Cattaneo R. et al.	CA 8.2	2011	Toxicological responses of Cyprinus carpio exposed to a commercial formulation containing glyphosate.	Bulletin of environmental contamination and toxicology (2011), Vol. 87, No. 6, pp. 597	5.4.1 case b) Relevant but supplementary information: Roundup (480 g/L contains surfactant) used up to 10 mg/L with common carp to look at impact on AChE enzyme and physiological effects. Study described well but not conducted to a guidline and the endpoints can not be extrapolated for use in the renewal of glyphosate. Conducted outside EU.
259	Cavusoglu K. et al.	CA 8.6.2	2011	Investigation of toxic effects of the glyphosate on Allium cepa.	Tarim Bilimleri Dergisi (2011), Vol. 17, No. 2, pp. 131	5.4.1 case b) Relevant but supplementary information: Glyphosate products were used in the study. Impact on seed germination and root growth.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
260	Cebotari V. et al.	CA 6.10.1	2018	Content of pesticide residues in the flowers of the acacia and linden trees from the Moldavian Codri area.	Scientific Papers, Series D. Animal Science (2018), Vol. 61, No. 2, pp. 235	5.4.1 case b) Relevant but supplementary information: The publication is considered to only provide supplementary information that is not directly relevant to MRL setting and risk assessment. The residue levels found in linden flower would trigger the need for a honey residue study and cannot be used to directly estimate an MRL. The method used to determine the residues of glyphosate in flowers is not described in the publication and no validation data are provided.
261	Chan C-W. et al.	CA 5.9.5	2016	Successful Extracorporeal Life Support in a Case of Severe Glyphosate-Surfactant Intoxication.	Critical care medicine (2016), Vol. 44, No. 1, pp. E45	5.4.1 case b) Relevant but supplementary information: This paper looked at the use of ECMO in a critically ill patient after formulated glyphosate product overdose. ECMO is sometime of utility in treating overdose patients. This paper should not impact re-registration.
262	Chandrasekera W. U. et al.	CA 8.2.1, CP 10.2.1	2011	The lethal impacts of Roundup® (glyphosate) on the fingerlings of guppy, Poecilia reticulata Peters, 1859.	Asian Fisheries Science (2011), Vol. 24, No. 4, pp. 367	5.4.1 case b) Relevant but supplementary information: The material and methods lacks important information. The purity of the formulation is not presented. There is a narrative on water qualities / environmental conditions during the test, but there is no actual data presented to confirm the acceptability of the exposure / test conditions except for a value presented for dissolved oxygen levels. There was no analytical verification of test concentrations reported and therefore the level of exposure cannot be confirmed. The study is considered unreliable.
263	Chang E. T. et al.	CA 5.9.4	2016	Systematic review and meta-analysis of glyphosate exposure and risk of lymphohematopoietic cancers.	Journal of environmental science and health. Part. B, Pesticides, food contaminants, and agricultural wastes (2016), Vol. 51, No. 6, pp. 402	5.4.1 case b) Relevant but supplementary information: The glyphosate meta-RRs took the results from the available studies at face value. The authors had no way to correct for recall bias, confounding, etc. Therefore, the meta-RRs are in error to the extent that the studies included in the meta-analysis are also in error. Chang and Delzell (2016) are clear on this point in their meta-analysis article. Accordingly glyphosate p-values and confidence intervals for the meta-RRs cannot be taken at face value because they incorporate systematic error or bias. Thus, the argument about the statistical significance/insignificance of the meta-RR for glyphosate is negated. One cannot calculate a valid p-value when there is uncontrolled systematic error (Greenland S. Randomization, statistics, and causal inference. Epidemiology 1990; 1:421-429).
264	Chau A. M. T. et al.	CA 5.9	2011	More Data on the Effect of Haemoperfusion for Acute Poisoning Is Required.	Blood Purification (2011), Vol. 31, No. 1-3, pp. 41	5.4.1 case b) Relevant but supplementary information: Letter to the Editor, Comments on Gil et al_2010, Blood Purif (2010), Vol. 30, No. 2, pp. 84-8.
265	Chen H-H. et al.	CA 5.9.5	2013	Spectrum of corrosive esophageal injury after intentional paraquat or glyphosate-surfactant herbicide ingestion.	International journal of general medicine (2013), Vol. 6, pp. 677	5.4.1 case b) Relevant but supplementary information: Ingestions of formulated glyphosate and paraquat are known to cause caustic injury which can result in respiratory and other complications. This paper should not impact the re-registration.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
266	Chiarello M. et al.	CA 6.5.3	2019	Fast analysis of glufosinate, glyphosate and its main metabolite, aminomethylphosphonic acid, in edible oils, by liquid chromatography coupled with electrospray tandem mass spectrometry.	Food additives & contaminants. Part A, Chemistry, analysis, control, exposure & risk assessment (2019), Vol. 36, No. 9, pp. 1376	5.4.1 case b) Relevant but supplementary information: Residue analytical method. Olive oil is relevant to the uses considered for renewal in the EU. But only few real samples analysed and all showed residues < LOQ which can be predicted from the physical-chemical properties of glyphosate and AMPA.
267	Cho Y. et al.	CA 5.9.5	2019	Serial measurement of glyphosate blood concentration in a glyphosate potassium herbicide-intoxicated patient: A case report.	The American journal of emergency medicine (2019), Vol. 37, pp 160	5.4.1 case b) Relevant but supplementary information: Measurement of glyphosate blood concentration in an intoxicated patient, no unusal findings for such a case (suicide attempt).
268	Cho Y. S. et al.	CA 5.9.2	2018	The qSOFA Score: A Simple and Accurate Predictor of Outcome in Patients with Glyphosate Herbicide Poisoning.	Basic & clinical pharmacology & toxicology (2018), Vol. 123, No. 5, pp. 615	5.4.1 case b) Relevant but supplementary information: This study is describing the use of a scoring system to predict severity of outcome after patients present with a formulated glyphosate overdose. This is meant to guide clinical practice and should not impact re-registration.
269	Cho Y. S. et al.	CA 5.9.5	2019	Use of qSOFA Score in Predicting the Outcomes of Patients With Glyphosate Surfactant Herbicide Poisoning Immediately Upon Arrival at the Emergency Department.	Shock (Augusta, Ga.) (2019), Vol. 51, No. 4, pp. 447	5.4.1 case b) Relevant but supplementary information: This article describes a scoring system that is widely used in intensive care and used to determine the prognosis of patients with a variety of presenting complaints. It is descriptive and helps physicians decide wheter a patient needs early ICU intervention. This article is describing a series of overdoses and should not impact re-registration
270	Choi B. et al.	CA 5.9.5	2013	Plasma lactate level may be an insufficient monitoring tool in critically ill patient: A case of ischemia modified albumin in acute glyphosate poisoning.	Toxicology Letters (2013), Vol. 221, Supp. 1, pp. S66	5.4.1 case b) Relevant but supplementary information: This is a report about measuring IMA rather than lactate as a marker of shock after suicidal ingestion of formulated glyphosate and should not impact re-registration.
271	Claassens A. et al.	CA 8.6	2019	Soilborne glyphosate residue thresholds for wheat seedling metabolite profiles and fungal root endophyte colonisation are lower than for biomass production in a sandy soil.	Plant and Soil (2019), Vol. 438, No. 1/2, pp. 393	5.4.1 case b) Relevant but supplementary information: Presented information on effects of glyphosate on seedling emergence and soil fungi, but no specific endpoints are presented that could be used for the renewal ecotoxicological risk assessment.
272	Conti C. L. et al.	CA 5.9.4	2018	Pesticide exposure, tobacco use, poor self-perceived health and presence of chronic disease are determinants of depressive symptoms among coffee growers from Southeast Brazil	Psychiatry Research (2018), Vol. 260, pp. 187	5.4.1 case b) Relevant but supplementary information: Study is fraught with limitations including very poor statistical analysis. Outcome and exposures essentially concurrent. This publication is considered unreliable.
273	Cordova Lopez A. M. et al.	CA 8.2.4	2019	Exposure to Roundup® affects behaviour, head regeneration and reproduction of the freshwater planarian Girardia tigrina	Science of the total environment (2019), Vol. 675, pp. 453	5.4.1 case b) Relevant but supplementary information: This is an invasive flatworm species in the EU. No specific test guidelines are available for this type of study, despite the range of endpoints that appear to have been covered.
274	Correia F. V. et al.	CA 8.4.2	2010	Effects of glyphosate and 2,4-D on earthworms (Eisenia foetida) in laboratory tests.	Bulletin of environmental contamination and toxicology (2010), Vol. 85, No. 3, pp. 264	5.4.1 case b) Relevant but supplementary information: Study looks at the impact of glyphosate on earthworm reproduction. Conducted to relevant guidelines. Technical glyphosate used, Brazilian soils used. Test concentrations from 1 to 1000 mg/kg in a 56 day study. Data is useful but there is no reliable endpoint to be used in the regulatory risk assessment of glyphosate renewal.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
275	Cothran R. D. et al.	CA 8.1.4	2013	Proximity to agriculture is correlated with pesticide tolerance: evidence for the evolution of amphibian resistance to modern pesticides.	Evolutionary Applications (2013), Vol. 6, No. 5, pp. 832	5.4.1 case b) Relevant but supplementary information: Endpoints or findings are not relevant at EU level ecotox risk assessment, but may be evidence / relevant to biodiversity discussions.
276	Cremonese C. et al.	CA 5.9.4	2017	Occupational exposure to pesticides, reproductive hormone levels and sperm quality in young Brazilian men	Reproductive Toxicology (2017), Vol. 67, pp. 174	5.4.1 case b) Relevant but supplementary information: Due to exposure/outcome temporal ambiguity and failure to control for other exposures in the evaluation of specific exposures. This publication is considered unreliable.
277	da Cruz C. et al.	CA 8.2.1	2016	Sensitivity, ecotoxicity and histopathological effects on neotropical fish exposed to glyphosate alone and associated to surfactant	Journal of Environmental Chemistry and Ecotoxicology (2016), Vol. 8, No. 3, pp. 25	5.4.1 case b) Relevant but supplementary information: The study was not conducted to GLP and/or according to a recognized test guideline and there are no validity criteria presented. The authors state that glyphosate alone and in association with Aterbane® BR was classified as practically non-toxic, whereas Aterbane® BR alone was considered moderately toxic for the tested organisms. However, due to insufficient explanation of experimental set-up (e.g. test substance, test medium, statistical analysis) and lack of experimental standard procedures (e.g. analytical verification), the study is may be used only as supportive information.
278	Dabney B. L. et al.	CA 8.2.6	2018	Low-dose stimulation of growth of the harmful alga, Prymnesium parvum, by glyphosate and glyphosate-based herbicides.	Harmful algae (2018), Vol. 80, pp. 130	5.4.1 case b) Relevant but supplementary information: This paper does not present endpoints that can be used in the ecotox risk assessment for the renewal. The information are however considered supportive to discussions over hormesis.
279	Dai P. et al.	CA 8.3.1, CP 10.3.1	2018	The Herbicide Glyphosate Negatively Affects Midgut Bacterial Communities and Survival of Honey Bee during Larvae Reared in Vitro.	Journal of agricultural and food chemistry (2018), Vol. 66, No. 29, pp. 7786	5.4.1 case b) Relevant but supplementary information: The bacterial communities in the mid-gut of bees were characterised. No gut bacterial analysis was conducted on the positive control bees. Overall an increase in abundance and richness of bacterial taxa was observed at the highest exposure concentration. The implications of this was not discussed in the paper. Bacterial assemblages in the gut of honey bees is not relatable to an EU level ecotoxicology risk assessment. The study is adequately described including specifications of the test item and test design. However, no regulatory endpoints were derived and there is no analytical verification of dose solutions.
280	Damgaard C. et al.	CA 8.7	2014	The effect of glyphosate on the growth and competitive effect of perennial grass species in semi-natural grasslands.	Journal of environmental science and health. Part. B, Pesticides, food contaminants, and agricultural wastes (2014), Vol. 49, No. 12, pp. 897	5.4.1 case b) Relevant but supplementary information: Not directly relevant to Ecotox risk assessment, but maybe used in biodiversity discussion.
281	Dang Q. et al.	CA 5.9.1	2011	Control Effect of Occupational Hazards in Construction Project of Glyphosate Production	Chinese Journal of Public Health Engineering (2011), Vol. 10, no. 2, pp. 111	5.4.1 case b) Relevant but supplementary information: This is a paper describing the evaluation of a glyphosate production facility and a description of how to mitigate risks of exposure to the chemistries involved in glyphosate production.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
282	de Almeida L. L. et al.	CA 5.6	2017	Effects of melatonin in rats in the initial third stage of pregnancy exposed to sub-lethal doses of herbicides.	Acta histochemica (2017), Vol. 119, No. 3, pp. 220	5.4.1 case b) Relevant but supplementary information: Formulation tested at high doses of 500 mg/kg bw/day (Roundup), therefore supplementary only.
283	de Araujo J. S A. et al.	CA 5.9.4	2016	Glyphosate and adverse pregnancy outcomes, a systematic review of observational studies.	BMC public health (2016), Vol. 16, pp. 472	5.4.1 case b) Relevant but supplementary information: review, secondary source.
284	de Avila R. I. et al.	CA 5.8	2017	In vitro assessment of skin sensitization, photosensitization and phototoxicity potential of commercial glyphosate-containing formulations.	Toxicology in vitro (2017), Vol. 45, No. 3, pp. 386	5.4.1 case b) Relevant but supplementary information: Non-validated model confirms glyphosate non-sensitized & non-photosensitizer. Formulation data inconsistent in non-validated model.
285	de Campos Oliveira R. et al.	CA 8.2.7	2016	Assessment of the potential toxicity of glyphosate-based herbicides on the photosynthesis of Nitella microcarpa var. wrightii (Charophyceae)	Phycologia (2016), Vol. 55, no. 5, pp. 577	5.4.1 case b) Relevant but supplementary information: Despite the study using a recognised OECD guideline, the endpoints in terms of respiration rates are not relevant to an EU level risk assessment for Annex I renewal, which specifically considers inhibition of glyphosate growth rates. The study considers technical glyphosate, Roundup and AMPA. Despite the techical material being identified, the formulation was not. It is not possible to conclude on the effects caused by the formulation as it was inferred that the product contains POEA.
286	de Castilhos Ghisi N. et al.	CA 5.4	2016	Does exposure to glyphosate lead to an increase in the micronuclei frequency? A systematic and meta-analytic review.	Chemosphere (2016), Vol. 145, pp. 42	5.4.1 case b) Relevant but supplementary information: No new data presented, only compilation of pooled glyphosate and formulated product meta-analyses.
287	De Geronimo E. et al.	CA 7.1.3.1.1	2018	Glyphosate sorption to soils of Argentina. Estimation of affinity coefficient by pedotransfer function	Geoderma (2018), Vol. 322, pp. 140	5.4.1 case b) Relevant but supplementary information: Reports most important parameters for glyphosate adsorption. Provides equation to predict Freundlich constant Kf. Useful qualitative information but not directly relevant for risk assessment.
288	de Jesus Veloso Castro A. et al.	CA 8.2.7	2015	Using a toxicity test with Ruppia maritima (Linnaeus) to assess the effects of Roundup.	Marine pollution bulletin (2015), Vol. 91, No. 2, pp. 506	5.4.1 case b) Relevant but supplementary information: This paper presents information on the effects of glyphosate on a saline tolerant species. However, there is no glyphosate exposure presented in the paper so it is very difficult to relate the observed effects to an exposure event / agricultural application.
289	De Raadt W. M. et al.	CA 5.9.5	2015	Acute eosinophilic pneumonia associated with glyphosate-surfactant exposure.	Sarcoidosis, vasculitis, and diffuse lung diseases : official journal of WASOG (2015), Vol. 32, No. 2, pp. 172	5.4.1 case b) Relevant but supplementary information: This article is a case report of a smoker who developed eosinophilic pneumonia after glyphosate exposure. Glyphosate is not a sensitizer as established by multiple GLP regulatory studies. Nozzle application of formulated glyphosate producess aerosols of between 200-350 microns. In humans, it takes droplets of <100 microns to cause inhalational injury. The claim that formulated glyphosate can cause inhalational injury in a setting where it isn't aspirated is not biologically plausible.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
290	Dechartres J. et al.	CA 5.8.2	2019	Glyphosate and glyphosate-based herbicide exposure during the peripartum period affects maternal brain plasticity, maternal behaviour and microbiome	Journal of Neuroendocrinology (2019), Vol. 31, pp. e12731	5.4.1 case b) Relevant but supplementary information: The glyphosate used was not sufficiently characterised, only one dose level was tested, the number of animals used per dose level was too low (n = 7) and a unreliable technique for oral dosing was employed (injection of test item in cookies). This publication is considered unreliable.
291	Dedeke G. A. et al.	CA 5.8.2	2018	Comparative Assessment on Mechanism Underlying Renal Toxicity of Commercial Formulation of Roundup Herbicide and Glyphosate Alone in Male Albino Rat.	International Journal of Toxicology (2018), Vol. 37, No. 4, pp. 285	5.4.1 case b) Relevant but supplementary information: The glyphosate used was not sufficiently characterized, the number of animals used per dose level was too low, and the conduct of the biochemical tests and the analysis of glyphosate in kidney tissue was poorly described. Moreover, the results from the testing of the oxidative stress parameters seem not reliable. This publication is considered unreliable.
292	Deepananda K. H. M. A. et al.	CA 8.2.4, CP 10.2.2	2011	Acute toxicity of a glyphosate herbicide, Roundup (R), to two freshwater crustaceans.	Journal of the National Science Foundation of Sri Lanka (2011), Vol. 39, No. 2, pp. 169	5.4.1 case b) Relevant but supplementary information: After exposure to Roundup® the 48 hour acute LC50 for adult copepod Phyllodiaptomus annae was determined to be 1.059 mg/L. This endpoint is questionable as there was only 19% mortality at the highest exposure concentration in the test (1.6 mg/L). For the second species, the 72 and 96 hour LC50 for decapod shrimp Caridina nilotica was determined to be 107.53 and 60.97 mg/L, respectively. However, the mean percenatge mortality at both timepoints was identical from Table 1 in the paper. As there are no biological data presented in the paper, the observed mortality and the LC50 calculation cannot be confirmed. The formulation content is identified as Roundup® (360g/L, 98%). However, the presented purity appears to be incorrectly stated, as a formulation with 98% purity, would suggest a technical material has been used, so there is uncertainty in actually what has been tested in the study. The tests were conducted according to EPA Guideline “Methods of Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater and Marine Organisms”. However, the origin of the organisms is not given. Therefore, previous exposure the test species may have had to pesticides or other chemicals is unclear. Furthermore, there was no analytical verification of test concentrations reported and the study is non-GLP, thus the reliability of the endpoint is questionable. Given the uncertainty in what was actually tested, the calculated endpoints and the conduct of the test, the study is considered unreliable.
293	Defarge N. et al.	CA 5.6	2012	Letter to the Editor: Developmental and reproductive outcomes of Roundup and Glyphosate in humans and animals.	Journal of Toxicology and Environmental Health Part B Critical Reviews (2012), Vol. 15, No. 7, pp. 433	5.4.1 case b) Relevant but supplementary information: Letter to the Editor, reaction on Williams et al._2012, Toxicol. Environ. Health B Crit. Rev. 15(1):39-96.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
294	Defarge N. et al.	CA 5.8	2016	Co-Formulants in Glyphosate-Based Herbicides Disrupt Aromatase Activity in Human Cells below Toxic Levels.	International journal of environmental research and public health (2016), Vol. 13, No. 3, pp. 264	5.4.1 case b) Relevant but supplementary information: In vitro results not significant for glyphosate vs multiple formulations or mixtures.
295	Demetrio P. M. et al.	CA 8.2.4	2012	Effects of pesticide formulations and active ingredients on the coelenterate Hydra attenuata (Pallas, 1766).	Bulletin of environmental contamination and toxicology (2012), Vol. 88, No. 1, pp. 15	5.4.1 case b) Relevant but supplementary information: Endpoints for Hydra attenuata are not a data requirement for the renewal data requirements under 1107/2009.
296	Demetrio P. M. et al.	CA 8.2.4.1, CP 10.2.1	2014	The effect of cypermethrin, chlorpyrifos, and glyphosate active ingredients and formulations on Daphnia magna (Straus).	Bulletin of environmental contamination and toxicology (2014), Vol. 93, No. 3, pp. 268	5.4.1 case b) Relevant but supplementary information: The test was not performed according to a relevant guideline. Although procedures are well documented, the water qualities during testing are not reported (only stock culture holding conditions are reported) and the test design in the study is not described, such as the number of animals exposed, test media preparation details and acclimation period prior to exposure. There are no biological data presented in order to confirm the achieved endpoints. The glyphosate formulation used in the testing is not the representative formulation for the renewal. Apparent from the endpoints achieved for the technical material and for the formulation, is the increased sensitivity of daphnia to the formulation, which is considered attributable to the co-formulants in the formulation and not to glyphosate. Based on the uncertainty associated with the materials and methods as described above, the study is considered as supplementary only.
297	Dennis P. G. et al.	CA 8.9	2018	The effects of glyphosate, glufosinate, paraquat and paraquat-diquat on soil microbial activity and bacterial, archaeal and nematode diversity	Scientific Reports (2018), Vol. 8, pp. 1	5.4.1 case b) Relevant but supplementary information: Nematode abundance is not an endpoint used in Ecotox risk assessment. However, these data are considered relevant to soil community effects based on single applications. Article is considered supplementary, as the approach used is not a recognised approach for ecotox risk assessment.
298	Deo S. P. et al.	CA 5.9.5	2012	Accidental chemical burns of oral mucosa by herbicide.	Journal of the Nepal Medical Association (2012), Vol. 52, No. 185, pp. 40	5.4.1 case b) Relevant but supplementary information: Large ingestions of formulated glyphosate can often result in caustic injury secondary to the surfactant's detergent actions on the mucous membranes of in people who ingest them. That said, they shouldn't cause microstomia, which tends to result from much more corrosive and scarring chemicals. This should not impact re-registration.
299	DeSesso J. M. et al.	CA 5.6	2012	Letter to the Editor: Toxicity of Roundup and Glyphosate response.	Journal of Toxicology and Environmental Health Part B Critical Reviews (2012), Vol. 15, No. 4, pp. 236	5.4.1 case b) Relevant but supplementary information: Letter to the Editor, response on Belle_2012, Journal of Toxicology and Environmental Health Part B Critical Reviews, (2012) Vol. 15, No. 4, pp. 233-235.
300	DeSesso J. M. et al.	CA 5.6	2012	Comment on "Glyphosate impairs male offspring reproductive development by disrupting gonadotropin expression".	Archives of Toxicology (2012), Vol. 86, No. 11, pp. 1791	5.4.1 case b) Relevant but supplementary information: Letter to the Editor, Comments on Romano et al._2012, Arch Toxicol (2012), Vol. 86, No. 4, pp. 663-73.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
301	DeSesso J. M. et al.	CA 5.6	2012	Response to the comments of Defarge and colleagues.	Journal of Toxicology and Environmental Health Part B Critical Reviews (2012), Vol. 15, No. 7, pp. 438	5.4.1 case b) Relevant but supplementary information: Letter to the Editor, reaction on Defarge et al._2012_Journal of Toxicology and Environmental Health Part B Critical Reviews (2012), Vol. 15, No. 7, pp. 433-437.
302	di Guardo A. et al.	CA 7.5	2016	A case study on monitoring glyphosate in water. Monitoraggio delle acque: il caso studio glifosate.	Informatore Agrario (2016), Vol. 72, No. 23, pp. 55	5.4.1 case b) Relevant but supplementary information: No new data presented. Describes a method for evaluating areas around monitoring stations in Lombardi region of Italy where the concentrations of glyphosate exceed the drinking water standard.
303	Dollinger J. et al.	CA 7.1.3.1.1	2016	Variability of glyphosate and diuron sorption capacities of ditch beds determined using new indicator-based methods.	The Science of the total environment (2016), Vol. 573, pp. 716	5.4.1 case b) Relevant but supplementary information: Supplementary information of glyphosate sorption. Sorption properties of glyphosate to the ditch-bed materials
304	Dollinger J. et al.	CA 7.1.3.1.1	2017	Using fluorescent dyes as proxies to study herbicide removal by sorption in buffer zones.	Environmental science and pollution research international (2017), Vol. 24, No. 12, pp. 11752	5.4.1 case b) Relevant but supplementary information: Soil adsoption data for glyphosate are reported but they are well within the numbers reported in the dossier. Adsorption compared to that of sulforhodamine B flourescent dye.
305	Dominguez A. et al.	CA 8.4.1	2016	Toxicity of AMPA to the earthworm Eisenia andrei Bouche, 1972 in tropical artificial soil.	Scientific reports (2016), Vol. 6, pp. 19731	5.4.1 case b) Relevant but supplementary information: The study is well-documented and performed according to ISO guideline 11268-1 and 11268-2. However, the artificial soil used is not classed as representative in the EU. Soil characteristics are only partly given as information on CEC, organic carbon content and bulk density are missing. Additionally, one of the validity criteria for the chronic test was not met (the reported minimum number of control juveniles is too low). Endpoints (NOEC, LC50) were not derived and therefore this study delivers only supplementary information.
306	Drasar P. et al.	CA 5.8.3	2018	Glyphosate, an important endocrine disruptor Glyfosat - Dulezity endokrinni disruptor.	Diabetologie Metabolismus Endokrinologie Vyziva (2018), Vol. 21, No. 2, pp. 93	5.4.1 case b) Relevant but supplementary information: review, secondary source.
307	Druart C. et al.	CA 8.2.1	2017	A full life-cycle bioassay with Cantareus aspersus shows reproductive effects of a glyphosate-based herbicide suggesting potential endocrine disruption.	Environmental pollution (2017), Vol. 226, pp. 240	5.4.1 case b) Relevant but supplementary information: The test design is novel and the achieved endpoints cannot be used in an EU ecotox risk assessment for Annex I renewal.
308	Druart C. et al.	CA 8.4.2	2010	Towards the development of an embryotoxicity bioassay with terrestrial snails: screening approach for cadmium and pesticides.	Journal of hazardous materials (2010), Vol. 184, No. 1-3, pp. 26	5.4.1 case b) Relevant but supplementary information: Glyphosate a.i., glyphosate products and other products used to compare toxicity to land snails. LC50 generated. But new method descibed not to any established guideline.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
309	Druart C. et al.	CA 8.7	2011	Glyphosate and glufosinate-based herbicides: fate in soil, transfer to, and effects on land snails	Journal of soils and sediments (2011), Vol. 11, No. 8, pp. 1373	5.4.1 case b) Relevant but supplementary information: The material and methods part lack some important information. The test design for the exposure of snails to treated food is not specified and thus the intake dose per snail is unclear. Furthermore, the application of the test solutions into the soil is not reported and an even distribution cannot be confirmed. Nevertheless a chemical analysis of the soil during exposure was performed. As the biological data does not report results as an endpoint useful for the risk assessment, the study is not done to a guideline and is non-GLP and can be considered as supplementary only.
310	Dung Le Tien et al.	CA 5.5	2013	Comments on "Long term toxicity of a Roundup herbicide and a Roundup-tolerant genetically modified maize".	Food and Chemical Toxicology (2013), Vol. 53, pp. 428	5.4.1 case b) Relevant but supplementary information: Letter to the Editor, Comment on Seralini et al._2012_Food Chemical Toxicol (2012), retracted
311	Ehling S. et al.	CA 6.9	2015	Analysis of Glyphosate and Aminomethylphosphonic Acid in Nutritional Ingredients and Milk by Derivatization with Fluorenylmethyloxycarbonyl Chloride and Liquid Chromatography-Mass Spectrometry.	Journal of agricultural and food chemistry (2015), Vol. 63, No. 48, pp. 10562	5.4.1 case b) Relevant but supplementary information: Selected analysis of samples that provide confirmatory results.
312	Elsner P. et al.	CA 5.9.2	2018	Occupational koebnerization of psoriasis caused by glyphosate.	Journal der Deutschen Dermatologischen Gesellschaft = Journal of the German Society of Dermatology (2018), Vol. 16, No. 1, pp. 70	5.4.1 case b) Relevant but supplementary information: There is not a mechanism for glyphosate to cause psoriasis, particularly 1 week post exposure.
313	Emmanuel L. D. A. et al.	CA 8.7	2015	Effect of glyphosate on Bacillus megaterium with reference to tea ecosystem.	International Journal of Tea Science (2015), Vol. 11, No. 3/4, pp. 16	5.4.1 case b) Relevant but supplementary information: Endpoints are not releateable to an EU ecotox risk assessment, but may inform on discussions over community level effects in soil.
314	Eriguchi M. et al.	CA 5.9.2	2019	Parkinsonism Relating to Intoxication with Glyphosate.	Internal medicine (2019), Vol. 58, No. 13, pp. 1935	5.4.1 case b) Relevant but supplementary information: (Reversible) Parkinsonism in case of acute in-toxication is a well-known effect and not specific for glyphosate.
315	Exterkoetter R. et al.	CA 7.1.4	2019	Potential of terracing to reduce glyphosate and AMPA surface runoff on Latosol	Journal of soils and sediments (2019), Vol. 19, No. 5, pp. 2240	5.4.1 case b) Relevant but supplementary information: Study in Brazil. Demonstrates effectiveness of terrace in reducing total mass loss of glyphosate and AMPA by reducing run-off volume. Did not reduce concentrations of glyphosate in run-off water. Potentially useful information but not directly relevant to EU risk assessment.
316	Fagundez G. A. et al.	CA 8.3.1	2016	Do agrochemicals used during soybean flowering affect the visits of Apis mellifera L.?	Spanish Journal of Agricultural Research (2016), Vol. 14, No. 1, p. e0301	5.4.1 case b) Relevant but supplementary information: Field level investigation where soybean are sprayed with glyphosate and the behaviour of bees is assessed. Findings not directly relateable to EU level risk assessment, as OTT crop application not on GAP - the observed effects are potentially useful for the discussion on indirect effects .

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
317	Farkas E. et al.	CA 5.8	2018	Label-free optical biosensor for real-time monitoring the cytotoxicity of xenobiotics: A proof of principle study on glyphosate.	Journal of hazardous materials (2018), Vol. 351, pp. 80	5.4.1 case b) Relevant but supplementary information: in vitro cytotoxicity assays.
318	Feldman V.	CA 5.7	2014	Neurodevelopmental toxicity: Still more questions than answers.	The Lancet Neurology (2014), Vol. 13, No. 7, pp. 645	5.4.1 case b) Relevant but supplementary information: Letter to the Editor, Comments on Grandjean et al_2014, Lancet Neurol. 2014 Jul;13(7):648-9.
319	Filizadeh Y. et al.	CA 8.2	2011	Toxicity determination of three sturgeon species exposed to glyphosate.	Iranian Journal of Fisheries Sciences (2011), Vol. 10, No. 3, pp. 383	5.4.1 case b) Relevant but supplementary information: LC50 generated for sturgeon species. Glyphosate products used. Guideline not mentioned but suitable methods described. Conducted in Iran.
320	Fluegge K. et al.	CA 5.9.4	2018	Environmental factors influencing the link between childhood ADHD and risk of adult coronary artery disease.	Medical Hypotheses (2018), Vol. 110, pp. 83	5.4.1 case b) Relevant but supplementary information: No new information without clear relevance for the risk assessment.
321	Fluegge K. et al.	CA 5.9.4	2016	Glyphosate Use Predicts Healthcare Utilization for ADHD in the Healthcare Cost and Utilization Project net (HCUPnet): A Two-Way Fixed-Effects Analysis.	Polish Journal of Environmental Studies (2016), Vol. 25, No. 4, pp. 1489	5.4.1 case b) Relevant but supplementary information: No new information without clear relevance for the risk assessment.
322	Fortes C. et al.	CA 5.9.4	2016	Occupational Exposure to Pesticides With Occupational Sun Exposure Increases the Risk for Cutaneous Melanoma	Journal of occupational and environmental medicine (2016), Vol. 58, No. 4, pp. 370	5.4.1 case b) Relevant but supplementary information: No specific analyses for glyphosate. Interviewers were not blinded. Recall bias may produce spurious positive associations. Confounding not addressed adequately. This publication is considered unreliable.
323	Frappart M. et al.	CA 5.9.2	2011	A fatal acute poisoning with glyphosate: importance of gastrointestinal toxicity. Original title: Une intoxication aigue fatale au glyphosate : importance de la toxicite digestive.	Annales francaises d'anesthesie et de reanimation (2011), Vol. 30, No. 11, pp. 852	5.4.1 case b) Relevant but supplementary information: This case report describes caustic injury to the GI tract and multi-organ failure after formulated glyphosate overdose. The clinical course is consistent with previous reports of overdose and should not impact re-registration.
324	Fuentes L. et al.	CA 8.1.4	2014	Role of sediments in modifying the toxicity of two Roundup formulations to six species of larval anurans.	Environmental toxicology and chemistry (2014), Vol. 33, No. 11, pp. 2616	5.4.1 case b) Relevant but supplementary information: No specific endpoints presented that could be used in an EU level Annex I Ecotox risk assessment.
325	Garcia-Torres T. et al.	CA 8.4.2	2014	Exposure assessment to glyphosate of two species of annelids.	Bulletin of environmental contamination and toxicology (2014), Vol. 93, No. 2, pp. 209	5.4.1 case b) Relevant but supplementary information: Information may be used to support the lack of effects in earthworm studies.
326	Garlich F. M. et al.	CA 5.9.5	2014	Hemodialysis clearance of glyphosate following a life-threatening ingestion of glyphosate-surfactant herbicide.	Clinical toxicology (2014), Vol. 52, No. 1, pp. 66	5.4.1 case b) Relevant but supplementary information: This article discusses the sucessful use of haemodialysis in a patient who was critically ill after a forrmulated glyphosate overdose.
327	Gaur H. et al.	CA 8.2.1	2019	Glyphosate induces toxicity and modulates calcium and NO signaling in zebrafish embryos.	Biochemical and biophysical research communications (2019 Vol. 513, No. 4, pp. 1070	5.4.1 case b) Relevant but supplementary information: Considered supplementary as the approaches used are not used in Ecotox risk assessment for Annex I renewal.
328	Gencer N. et al.	CA 5.8.2	2012	In vitro effects of some herbicides and fungicides on human erythrocyte carbonic anhydrase activity	Fresenius Environmental Bulletin (2012), Vol. 21, No. 3, pp. 549	5.4.1 case b) Relevant but supplementary information: Glyphosate tested was not sufficiently characterised, the conditions of the inhibition assay are incompletely reported, no positive control was used and the statistics arenot well reported. This publication is considered unreliable.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
329	Geng C. et al.	CA 7.1.3.1.1	2015	Modeling the release of organic contaminants during compost decomposition in soil.	Chemosphere (2015), Vol. 119, pp. 423	5.4.1 case b) Relevant but supplementary information: The paper is about degradation and adsorption of glyphosate on compost and soils and the data is consistent with endpoints reported in the dosier it does not change the risk assessment.
330	Ghafoor A. et al.	CA 7.1.3.1.1	2013	Modelling pesticide sorption in the surface and subsurface soils of an agricultural catchment.	Pest management science (2013), Vol. 69, No. 8, pp. 919	5.4.1 case b) Relevant but supplementary information: Sorption of glyphosate was measured in surface and subsurface soils to test an 'extended' partitioning model that also accounts for inorganic sorbents and pH as well as organic sorbents.
331	Gil H-W. et al.	CA 5.9.5	2013	Effect of intravenous lipid emulsion in patients with acute glyphosate intoxication.	Clinical toxicology (2013), Vol. 51, No. 8, pp. 767	5.4.1 case b) Relevant but supplementary information: This paper evaluated the use of lipid therapy to treat formulated glyphosate overdoses. The mortality in these overdoses is usually due to the caustic injury to the mucosa membrane from the surfactant moeity of the product. There is some evidence that lipid emulsion can decrease the toxicity of the surfactant. These are suicidal ingestions and should not impact re-registration.
332	Goldner W. S. et al.	CA 5.9.4	2013	Hypothyroidism and Pesticide Use Among Male Private Pesticide Applicators in the Agricultural Health Study	Journal of Occupational and Environmental Medicine (2013), Vol. 55, No. 10, pp. 1171	5.4.1 case b) Relevant but supplementary information: No correlation between effects and glyphosate use.
333	Goldstein D. A. et al.	CA 5.7	2014	Neurodevelopmental toxicity: Still more questions than answers.	The Lancet Neurology (2014), Vol. 13, No. 7, pp. 645	5.4.1 case b) Relevant but supplementary information: Letter to the Editor, Comments on Grandjean et al._2014, Lancet Neurol (2014), Vol. 13, No. 7, pp. 648-9.
334	Goldstein D. A. et al.	CA 5.9.1	2012	Comment: Aris and Leblanc "Maternal and fetal exposure to pesticides associated to genetically modified foods in Eastern Townships of Quebec, Canada".	Reproductive Toxicology (2012), Vol. 33, No. 1, pp. 120	5.4.1 case b) Relevant but supplementary information: Letter to the Editor, comments on Aris et al._2011, Reprod. Toxicol (2011), Vol. 31, pp. 528-533.
335	Goldstein D. A. et al.	CA 5.9.2	2018	Reversible Parkinsonism following glyphosate exposure.	Parkinsonism and Related Disorders (2018), Vol. 56, pp. 107	5.4.1 case b) Relevant but supplementary information: Letter ref to Zheng et al._2018, Parkinsonism Relat Disord. (2018), Vol. 56, pp.108.
336	Grandcoin A. et al.	CA 7.1.2.1.2, CA 7.1.3.1.2, CA 7.2.1.3	2017	AminoMethylPhosphonic acid (AMPA) in natural waters: Its sources, behavior and environmental fate.	Water research (2017), Vol. 117, pp. 187	5.4.1 case b) Relevant but supplementary information: Review paper, paper does not report experimental results but it is a comprehensive review on the sources of AMPA in the environment.
337	Grandjean P. et al.	CA 5.7	2014	Neurodevelopmental toxicity: Still more questions than answers - Authors' response.	The Lancet Neurology (2014), Vol. 13, No. 7, pp. 648	5.4.1 case b) Relevant but supplementary information: Letter to the Editor, author responding to multiple Letters to Editors
338	Greim H. et al.	CA 5.5	2015	Evaluation of carcinogenic potential of the herbicide glyphosate, drawing on tumor incidence data from fourteen chronic/carcinogenicity rodent studies.	Critical reviews in toxicology (2015), Vol. 45, No. 3, pp. 185	5.4.1 case b) Relevant but supplementary information: review, secondary source.
339	Gress S. et al.	CA 5.8	2015	Glyphosate-based herbicides potently affect cardiovascular system in mammals: review of the literature.	Cardiovascular toxicology (2015), Vol. 15, No. 2, pp. 117	5.4.1 case b) Relevant but supplementary information: review, secondary source.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
340	Gros P. et al.	CA 7.1.3.1.1	2017	Glyphosate binding in soil as revealed by sorption experiments and quantum-chemical modeling.	The Science of the total environment (2017), Vol. 586, pp. 527	5.4.1 case b) Relevant but supplementary information: A multitude of binding mechanisms to clay minerals and organic colloids studied make the occurrence of free glyphosate rather unlikely but a leaching of glyphosate complexes via preferential flow path through soil and transfer to waterways rather likely.
341	Grunewald W. et al.	CA 5.5	2013	Comment on "Long term toxicity of a Roundup herbicide and a Roundup-tolerant genetically modified maize".	Food and Chemical Toxicology (2013), Vol. 53, pp. 447	5.4.1 case b) Relevant but supplementary information: Letter to the Editor, Comment on Seralini et al._2012_Food Chemical Toxicol. (2012), retracted
342	Gui Y-X. et al.	CA 5.8	2012	Glyphosate induced cell death through apoptotic and autophagic mechanisms.	Neurotoxicology and teratology (2012), Vol. 34, No. 3, pp. 344	5.4.1 case b) Relevant but supplementary information: Unrealistically high in vitro dosing in the mM range.
343	Gungordu A.	CA 8.1.4	2013	Comparative toxicity of methidathion and glyphosate on early life stages of three amphibian species: Pelophylax ridibundus, Pseudepidalea viridis, and Xenopus laevis.	Aquatic toxicology (2013), Vol. 140-141, pp. 220	5.4.1 case b) Relevant but supplementary information: Endpoints for amphibians are not a data requirement for Annex I renewal in the EU, as there are no recognised guidelines.
344	Gungordu A. et al.	CA 8.1.4	2016	Integrated assessment of biochemical markers in premetamorphic tadpoles of three amphibian species exposed to glyphosate- and methidathion-based pesticides in single and combination forms.	Chemosphere (2016), Vol. 144, pp. 2024	5.4.1 case b) Relevant but supplementary information: Amphibian enzyme level based endpoints are not a data requirement for the EU level ecotox risk assessment for Annex I purposes. Endpoints cannot be directly related to the EU level Ecotox risk assessment.
345	Hackenberger Davorka K. et al.	CA 8.4.1	2018	Acute and subchronic effects of three herbicides on biomarkers and reproduction in earthworm Dendrobaena veneta.	Chemosphere (2018), Vol. 208, pp. 722	5.4.1 case b) Relevant but supplementary information: The chronic test was performed according to OECD 222. However, the study was not conducted to GLP. Information on validity criteria are missing, and there is not analytical verification of soil concentrations. The unexpectedly high number of cocoons and the low number of juveniles being produced in the control group at the end of the study suggests that the quality of the earthworms going into the study may have been low. According to OECD 222, by the end of the test, the number of juveniles produced per adult worm should be > 30. In this case, with six adult worms per replicate there was a mean production (juveniles per worm) of 2.67 worms per adult. It is also understood that the OECD 222 test guideline uses a different species (Eisenia fetida) and not Dendrobaena veneta. It is relevant to consider juvenile production in the control as a check on the test system robustness. This cannot be confirmed in this case. Therefore, the study can be considered acceptable as supplementary information.
346	Haggard D. E. et al.	CA 5.8.3	2018	Erratum to High-Throughput H295R Steroidogenesis Assay: Utility as an Alternative and a Statistical Approach to Characterize Effects on Steroidogenesis.	Toxicological Sciences (2018), Vol. 164, No. 2, pp. 646	5.4.1 case b) Relevant but supplementary information: Erratum to Haggard et al._2018, Toxicological Sciences (2018), Vol. 162, No. 2, pp. 509-534.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
347	Haggard D. E. et al.	CA 5.8.3	2018	High-throughput H295R steroidogenesis assay: utility as an alternative and a statistical approach to characterize effects on steroidogenesis	Toxicological Sciences (2018), Vol. 162, No. 2, pp. 509	5.4.1 case b) Relevant but supplementary information: ToxCast data for high throughput H295R assay not available on glyphosate, presumably because it is not soluble in DMSO.
348	Hagner M. et al.	CA 7.1.4.1.1	2013	The effects of biochar, wood vinegar and plants on glyphosate leaching and degradation	European journal of soil biology (2013), Vol. 58, pp. 1	5.4.1 case b) Relevant but supplementary information: The paper investigated addition of biochar, plants, and wood vinegar to the soil in pots and reported that biochar decreased the leaching of glyphosate, it is only relevant for mechanism of sorption but not for risk assessment.
349	Hammond B. et al.	CA 5.5	2013	A Comment on "Long term toxicity of a Roundup herbicide and a Roundup-tolerant genetically modified maize".	Food and Chemical Toxicology (2013), Vol. 53, pp. 444	5.4.1 case b) Relevant but supplementary information: Letter to the Editor, Comment on Seralini et al._2012_Food Chemical Toxicol (2012), retracted
350	Han S. K. et al.	CA 5.9	2010	Use of a lipid emulsion in a patient with refractory hypotension caused by glyphosate-surfactant herbicide.	Clinical toxicology (2010), Vol. 48, No. 6, pp. 566	5.4.1 case b) Relevant but supplementary information: This is a case report of a suicidal ingestion of formulated glyphosate that was treated with lipid emulsion and symptoms improved. As this is a description of medical management of a suicidal overdose, this should not impact re-registration
351	Hansen L. R. et al.	CA 8.2.4	2016	Behavioral responses of juvenile Daphnia magna after exposure to glyphosate and glyphosate-copper complexes.	Aquatic toxicology (2016), Vol. 179, pp. 36	5.4.1 case b) Relevant but supplementary information: Paper considers the influence of metals in daphnia testing and their influence on toxicity. Soils on the toxicity of endpoints considering speciation and enhanced toxicity in the presence of metals are not used in the EU level ecotox risk assessment.
352	Hansen N. B. et al.	CA 5.9.5	2013	Severe toxicity from accidental glyphosate ingestion in a child.	Clinical Toxicology (2013), Vol. 51, No. 4, pp. 354	5.4.1 case b) Relevant but supplementary information: This is a case report of an accidental ingestion of formulated glyphosate resulting in mild corrosive injury to the GI tract in a small child and should not impact re-registration.
353	Heinemann J. A.	CA 5.5	2013	Food and chemical toxicology.	Food and Chemical Toxicology (2013), Vol. 53, pp. 442	5.4.1 case b) Relevant but supplementary information: Letter to the Editor, Comment on Seralini et al._2012_Food Chemical Toxicol (2012), retracted
354	Helander M. et al.	CA 8.6	2019	Glyphosate residues in soil affect crop plant germination and growth.	Scientific reports (2019), Vol. 9, No. 1, pp. 19653	5.4.1 case b) Relevant but supplementary information: The study presents endpoints that may be considered relevant to a risk assessment, however, the test design does not reflect the seedling emergence study required as part of the data requirements.
355	Henneberger P. K. et al.	CA 5.9.4	2014	Exacerbation of symptoms in agricultural pesticide applicators with asthma.	International archives of occupational and environmental health (2014), Vol. 87, No. 4, pp. 423	5.4.1 case b) Relevant but supplementary information: No adverse effects correlating with glyphosate use.
356	Honskii Y. I. et al.	CA 5.8.2	2011	Effects of heavy metal salts and organophosphoric pesticides on protein metabolism in exposed white rats	Medichna Khimiya (2011), Vol. 13, No. 4, pp. 100	5.4.1 case b) Relevant but supplementary information: Mechanistic study without clear relevance for the risk assessment / glyphosate.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
357	Hopa E. et al.	CA 5.1	2011	The inhibitory effects of some pesticides on human erythrocyte glucose-6-phosphate dehydrogenase activity (in vitro).	Fresenius Environmental Bulletin (2011), Vol. 20, No. 5a, pp. 1314	5.4.1 case b) Relevant but supplementary information: glyphosate and 2,4-D had been used as test material from a "local pesticide shop". No further identification of the test material had been provided, moreover the study design is not well described.
358	Hoppin J. A. et al.	CA 5.9.4	2017	Pesticides are Associated with Allergic and Non-Allergic Wheeze among Male Farmers.	Environmental health perspectives (2017), Vol. 125, No. 4, pp. 535	5.4.1 case b) Relevant but supplementary information: The exposure and outcome data were concurrent, so a temporal relationship could not be established. The extraordinary number of positive statistically significant findings mitigates against interpreting any one finding as likely to be causal. This publication is considered unreliable.
359	Hour B. T. et al.	CA 5.9.5	2012	Herbicide roundup intoxication: successful treatment with continuous renal replacement therapy.	The American journal of medicine (2012), Vol. 125, No. 8, pp. 1	5.4.1 case b) Relevant but supplementary information: This article discusses the use of CVVD in formulated glyphosate overdoses and medical management of suicidal ingestions and therefore should not impact registration decisions
360	Indirakshi J. et al.	CA 5.9.5	2017	Toxic Epidermal Necrolysis and Acute Kidney Injury due to Glyphosate Ingestion.	Indian journal of critical care medicine (2017), Vol. 21, No. 3, pp. 167	5.4.1 case b) Relevant but supplementary information: Glyphosate based formulations are not known to cause TEN which is a t-cell mediated type IV hypersensitivity reaction. >1% of glyphosate is absorbed through the skin and large ingestions have caustic effects on th GI tract which can result in mult-iorgan failure.
361	Isaac A. O. et al.	CA 8.2.1	2017	Behavioural and some physiological assessment of glyphosate and paraquat toxicity to juveniles of African catfish, Clarias gariepinus.	Pakistan Journal of Zoology (2017), Vol. 49, No. 1, pp. 183	5.4.1 case b) Relevant but supplementary information: Although the study itself is not directly relatable to an EU level ecotoxicological risk assessment for Annex I renewal purposes, the study was potentially considered as sublethal effects on fish behaviour following exposure to glyphosate were described.
362	Issa A. A. E. et al.	CA 8.2.6	2013	Alterations in some metabolic activities of Scenedesmus quadricauda and Merismopedia glauca in response to glyphosate herbicide.	Journal of Biology and Earth Sciences (2013), Vol. 3, No. 1, pp. B17	5.4.1 case b) Relevant but supplementary information: The reported endpoints in terms of growth rates and pigment levels are not relateable to the EU level risk assessment for the renewal. The idenitity of the test items cannot be confirmed.
363	Iwai K. et al.	CA 5.9.5	2014	Utility of upper gastrointestinal endoscopy for management of patients with roundup poisoning.	Journal of Clinical Toxicology (2014), Vol. 4, No. 6, pp. 1	5.4.1 case b) Relevant but supplementary information: This article discusses the use of endoscopy to treat formulated glyphosate overdose and medical management of suicidal ingestions and therefore should not impact registration decisions.
364	Jacques M. T. et al.	CA 8.7	2019	Reprotoxicity of glyphosate-based formulation in Caenorhabditis elegans is not due to the active ingredient only.	Environmental pollution (2019), Vol. 252, No. Pt B, pp. 1854	5.4.1 case b) Relevant but supplementary information: The toxicity of glyphosate (glyphosate in monoisopropylamine salt) and its commercial formulation Termifin - Dexter Latina to the nematode Caenorhabditis elegans was investigated. Reproductive capacity was evaluated by means of brood size. The material and methods section lack some important information. The preparation of the test solutions and application of the test item are not described. Test concentrations, controls and loading per replicate are not specified and therefore not verifiable. Description of exposure throughout the study is also missing. The formulation used is not the representative formulation for the renewal. Furthermore, no useful endpoint for the regulatory risk assessment of terrestrial organisms can be derived.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
365	Jain S. et al.	CA 8.6.2	2012	Herbicidal action on germination, amylase activity and gibberellin level in Cajanus cajan (L.).	Bioscience Discovery Journal (2012), Vol. 3, No. 2, pp. 232	5.4.1 case b) Relevant but supplementary information: The study was not conducted to GLP and the test substance source and identity could not be verified. The study has not been conducted according to a recognized test guideline and there are no validity criteria presented. The authors state that glyphosate affects the level of gibberellin and amylase activity, as well as causing the food reserve content of seedlings to decrease gradually with increase in concentration. However, given the lack of standard guidelines, unclear experimental design and approach, test substance and dose rates not sufficiently being reported as well as challenges in interpreting the study results, make reaching any reliable conclusions from the study quite challenging.
366	Jansons M. et al.	CA 6.9	2018	Occurrence of glyphosate in beer from the Latvian market.	Food additives & contaminants. Part A, Chemistry, analysis, control, exposure & risk assessment (2018), Vol. 35, No. 9, pp. 1767	5.4.1 case b) Relevant but supplementary information: Includes information on residues in beer. Not directly relevant to dietary risk assessment but provides supplemental information.
367	Jarmul-Pietraszczyk J. et al.	CA 8.4.1	2012	Herbicide toxicity to the California earthworms Eisenia fetida Sav. and Dendrobaena veneta Rosa	Ecological Chemistry and Engineering A (2012), Vol. 19, No. 9, pp. 1133	5.4.1 case b) Relevant but supplementary information: This study compared the toxicity of three different commercially available formulations on the reproduction of earthworms, among them a glyphosate containing product (Glifocyd 360 SL). Further detail on active substance content, source and storage conditions were not provided. The study was not conducted according to a recognized test guideline nor under GLP. The origin of the earthworm species and their environmental holding conditions prior to and during the study have not been included. Information on the test soil characteristics is also missing and application of the test item to the soil is not described in detail. Sublethal and reproductive parameters of the control were reported, but information about control mortality is missing. In the chronic test only one single test item concentration was tested, with this information for the acute study missing. The endpoint generated from this study is given in mg/L and it is not clear how it can be transferred to soil concentrations as the bulk density in the test system is unknown and the statistical analysis is not provided in detail. Therefore, the endpoint presented is considered unreliable.
368	Jasper R. et al.	CA 5.3	2012	Evaluation of biochemical, hematological and oxidative parameters in mice exposed to the herbicide glyphosate-Roundup(®).	Interdisciplinary toxicology (2012), Vol. 5, No. 3, pp. 133	5.4.1 case b) Relevant but supplementary information: Gavaged formulated product, effects not attributable to glyphosate.
369	Jayasumana C. et al.	CA 5.9.2	2014	Glyphosate, hard water and nephrotoxic metals: are they the culprits behind the epidemic of chronic kidney disease of unknown etiology in Sri Lanka?.	International journal of environmental research and public health (2014), Vol. 11, No. 2, pp. 2125	5.4.1 case b) Relevant but supplementary information: Presents a hypothesis which is not tested, only discussed.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
370	Jayasumana C. et al.	CA 5.9.2	2015	Simultaneous exposure to multiple heavy metals and glyphosate may contribute to Sri Lankan agricultural nephropathy.	BMC nephrology (2015), Vol. 16, pp. 103	5.4.1 case b) Relevant but supplementary information: Presents a hypothesis which is not tested, only discussed
371	Jiang Y. et al.	CA 7.2.1.3	2016	The role of Fe(III) on phosphate released during the photo-decomposition of organic phosphorus in deionized and natural waters.	Chemosphere (2016), Vol. 164, pp. 208	5.4.1 case b) Relevant but supplementary information: Study of the role of Fe3+ in photodegradation of glyphosate in natural water.
372	Jofre D. M. et al.	CA 8.2.1	2013	Fish Toxicity of Commercial Herbicides Formulated With Glyphosate	Journal of Environmental & Analytical Toxicology. Vol. 4, no. 1, pp. 1	5.4.1 case b) Relevant but supplementary information: Data considered supplemental as the test design and the achieved endpoints are not those used in EU risk assessment. The test substance although not specifically identified, in terms of the SL salt of glyphosate, looks like it could be at a similar a.e. content.
373	Jomichen J. et al.	CA 5.9.1	2017	Australian work exposures studies: occupational exposure to pesticides.	Occupational and environmental medicine (2017), Vol. 74, No. 1, pp. 46	5.4.1 case b) Relevant but supplementary information: Occupational exposure survey.
374	Jovic-Stosic J. et al.	CA 5.9.5	2013	Lipid emulsion in treatment of cardiovascular collapse in acute poisoning.	Clinical Toxicology (2013), Vol. 51, No. 4, pp. 288.	5.4.1 case b) Relevant but supplementary information: This is a case series that included one patient with a formulated glyphosate overdose and treatment with ILE. This describes medical management of overdoses and should not impact re-registration.
375	Jovic-Stosic J. et al.	CA 5.9.5	2016	Intravenous lipid emulsion in treatment of cardiocirculatory disturbances caused by glyphosate-surfactant herbicide poisoning.	Vojnosanitetski pregled (2016), Vol. 73, No. 4, pp. 390	5.4.1 case b) Relevant but supplementary information: Medical case of intentional ingestion. ILE has been proposed as a possible therapy for formulated glyphosate overdoses. As this was a suicide attempt, this should not impact re-registration.
376	Jovic-Stosic J. et al.	CA 5.9.5	2016	Antidotal use of intravenous lipid emulsion: 5 years' experience in an intensive care unit.	Clinical Toxicology (2016), Vol. 54, No. 4, pp. 476.	5.4.1 case b) Relevant but supplementary information: This is a report about using ILE to treat overdoses with 1 patient who ingested formulated glyphosate. This paper should not impact re-registration.
377	Jyoti W. et al.	CA 5.9.5	2014	Esophageal perforation and death following glyphosate poisoning.	Journal of postgraduate medicine (2014), Vol. 60, No. 3, pp. 346	5.4.1 case b) Relevant but supplementary information: Formulated glyphosate can cause caustic injury to the mucosa membrane after ingestion. The esophagus is especially prone to perforation. Due to the absence of a serosa, the esophagus is notoriously difficult to repair & heal. This is not an unusual feature of caustic injury. As this was a suicide attempt, this should not impact re-registration.
378	Kachuri L. et al.	CA 5.5	2013	Multiple pesticide exposures and the risk of multiple myeloma	International Journal of Cancer (2013), Vol. 133, No. 8, pp. 1846	5.4.1 case b) Relevant but supplementary information: Exposure to multiple pesticides and a case control study which is subject to recall bias.
379	Kamijo Y. et al.	CA 5.9.5	2016	A multicenter retrospective survey of poisoning after ingestion of herbicides containing glyphosate potassium salt or other glyphosate salts in Japan.	Clinical toxicology (2016), Vol. 54, No. 2, pp. 147	5.4.1 case b) Relevant but supplementary information: This article discusses the incidence of hyperkalemia and multi-organ failure after formulated glyphosate ingestions. Neither of these findings are surprising in the setting of potassium salt or surfactant ingestions.
380	Kamijo Y. et al.	CA 5.9.5	2012	Glyphosate-surfactant herbicide products containing glyphosate potassium salt can cause fatal hyperkalemia if ingested in massive amounts.	Clinical toxicology (2012), Vol. 50, No. 2, pp. 159	5.4.1 case b) Relevant but supplementary information: This article discusses the fact that certain glyphosate-potassium salt formulations can cause fatal hyperkalemia in overdose. This article discusses a feature of suicidal ingestions and therefore should not impact registration decisions.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
381	Karasali H. et al.	CA 7.5	2019	Investigation of the presence of glyphosate and its major metabolite AMPA in Greek soils.	Environmental science and pollution research international (2019), Vol. 26, No. 36, pp. 36308	5.4.1 case b) Relevant but supplementary information: Paper provides data on glyphosate & AMPA concentrations in Greek soils, but there is no correlating information on glyphosate rates applied or any information on soil characterization.
382	Karberg K. et al.	CA 5.9.2	2018	Glyphosate levels in older adults.	JAMA - Journal of the American Medical Association (2018), Vol. 319, No. 13, pp. 1384	5.4.1 case b) Relevant but supplementary information: Medical data which should not impact the re-registration.
383	Kato Y.	CA 5.9.5	2015	Three cases of an extreme hyperkalemia associated with glyphosate potassium herbicide poisoning	The Japanese journal of toxicology (2015), Vol. 28, No. 4, pp. 368	5.4.1 case b) Relevant but supplementary information: This article describes a case series of three patients who presented with extreme hyperkalemia after suicidal ingestion of formulated glyphosate. This is not unexpected in an ingestion involving glyphosate formulated product with potassium salts and should not affect re-registration.
384	Kawagashira Y. et al.	CA 5.9.5	2017	Vasculitic Neuropathy Following Exposure to a Glyphosate-based Herbicide.	Internal medicine (2017), Vol. 56, No. 11, pp. 1431	5.4.1 case b) Relevant but supplementary information: This article discussed the development of painful discoloration of the toes and feet four months after the patient spray applied formulated glyphosate to crops. Interestingly, the patient was taking warfarin therapeutically, which can cause the well-described "purple toe syndrome". There is not a mechanism by which sprayed formulated glyphosate can be absorbed by the skin and directly impact small vasculature or neurons in the feet.
385	Kennedy E. et al.	CA 8.6	2012	Herbiciding Phragmites australis: effects on litter decomposition, microbial biomass, and macroinvertebrate communities.	Fundamental and Applied Limnology (2012), Vol. 180, No. 4, pp. 309	5.4.1 case b) Relevant but supplementary information: This paper provides information that is considered relevant to the biodiversity.
386	Kepler R. M. et al.	CA 7.5	2019	Soil microbial communities in diverse agroecosystems exposed to the herbicide glyphosate.	Applied and environmental microbiology (2020), Vol. 18, No. 86	5.4.1 case b) Relevant but supplementary information: Not relevant to existing endpoint but provide support that glyphosate does not have a negative impact on soil microorganisms.
387	Khot R. et al.	CA 5.9.2	2018	Glyphosate poisoning with acute fulminant hepatic failure.	Asia Pacific Journal of Medical Toxicology (2018), Vol. 7, No. 3, pp. 86	5.4.1 case b) Relevant but supplementary information: glyphosate is not hepatotoxic by any route.
388	Kier L. D.	CA 5.4	2015	Review of genotoxicity biomonitoring studies of glyphosate-based formulations.	Critical reviews in toxicology (2015), Vol. 45, No. 3, pp. 209	5.4.1 case b) Relevant but supplementary information: review, secondary source
389	Kier L. D. et al.	CA 5.4	2013	Review of genotoxicity studies of glyphosate and glyphosate-based formulations.	Critical reviews in toxicology (2013), Vol. 43, No. 4, pp. 283	5.4.1 case b) Relevant but supplementary information: review, secondary source.
390	Kim E. et al.	CA 5.9.5	2016	Patterns of drugs & poisons in southern area of South Korea in 2014.	Forensic Science International (2016), Vol. 269, pp. 50	5.4.1 case b) Relevant but supplementary information: This is an article describing the chemicals / pharmaceuticals that were used in fatal overdoses that were forensically evaluated at the Busan Institute of National Forensic Services. Out of 606 fatalities, agricultural chemicals were involved in 5 and glyphosate was detected in 2 of the cases.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
391	Kim Y. H. et al.	CA 5.9.5	2014	Heart rate-corrected QT interval predicts mortality in glyphosate-surfactant herbicide-poisoned patients.	The American journal of emergency medicine (2014), Vol. 32, No. 3, pp. 203	5.4.1 case b) Relevant but supplementary information: This article discusses the utility of the QTc interval to predict mortality in suicidal ingestions of glyphosate-based formulation. It is not unexpected for critically ill patients to develop a long QTc.
392	Kim Y. H. et al.	CA 5.9.5	2016	Prognostic Factors in Emergency Department Patients with Glyphosate Surfactant Intoxication: Point-of-Care Lactate Testing.	Basic & clinical pharmacology & toxicology (2016), Vol. 119, No. 6, pp. 604	5.4.1 case b) Relevant but supplementary information: This study evaluated the use of lactate as a predictor of mortality and found a statistically significant association between a serum lactate of 4.7mmol/L and mortality in formulated glyphosate overdoses. This is not surprising as caustic injury due to detergent-like surfactants will cause cell death and thereby increase lactate levels. This article discusses predictors of mortality in suicidal ingestions and therefore should not impact registration decisions.
393	Kim Y-h.. et al.	CA 5.8	2013	Mixtures of glyphosate and surfactant TN20 accelerate cell death via mitochondrial damage-induced apoptosis and necrosis.	Toxicology in vitro : an international journal published in association with BIBRA (2013), Vol. 27, No. 1, pp. 191	5.4.1 case b) Relevant but supplementary information: In vitro cytotoxicity endpoints measured for glyphosate & surfactant along and in combination. No significant effects with glyphosate alone.
394	Kimmel G. L. et al.	CA 5.6.2	2013	Evaluation of developmental toxicity studies of glyphosate with attention to cardiovascular development.	Critical reviews in toxicology (2013), Vol. 43, No. 2, pp. 79	5.4.1 case b) Relevant but supplementary information: review, secondary source.
395	Kjaer J. et al.	CA 7.1.4.3, CA 7.5	2011	Reply to Comments on "Transport modes and pathways of the strongly sorbing pesticides glyphosate and pendimethalin through structured drained soils".	Chemosphere (2011), Vol. 85, No. 9, pp. 1539	5.4.1 case b) Relevant but supplementary information: Letter to the Editor, Reply to Comments on by Petersen et al_2011, Chemosphere (2011), Vol. 84. No. 4, pp. 471-479.
396	Klatyik S. et al.	CA 7.5	2017	Dissipation of the herbicide active ingredient glyphosate in natural water samples in the presence of biofilms	International journal of environmental analytical chemistry (2017), Vol. 97, No. 10, pp. 901	5.4.1 case b) Relevant but supplementary information: The article reports glyphosate dissipation in irradiated natural water samples from European surface waters under laboratory conditions. The water was only characterised for pH and conductivity. No dark control experiments were conducted. Average results of concentration measurements are only presented as graphical plots and not discussed in detail (focus on effect of biofilms). This publication is considered unreliable.
397	Knezevic V. et al.	CA 5.9.5	2012	Early continuous dialysis in acute glyphosate-surfactant poisoning	Srpski arhiv za celokupno lekarstvo (2012), Vol. 140, No. 9-10, pp. 648	5.4.1 case b) Relevant but supplementary information: Glyphosate based formulations can cause renal injury in overdose, and the K+ formulations may result in hyperkalemia. It is therefore reasonable to start hemodialysis or hemofiltration in critically ill patients with kidney failure or hyperkalemia. As this was a suicide attempt, this should not impact re-registration.
398	Knudsen L. E. et al.	CA 5.9.1	2017	Biomonitoring of Danish school children and mothers including biomarkers of PBDE and glyphosate.	Reviews on environmental health (2017), Vol. 32, No. 3, pp. 279	5.4.1 case b) Relevant but supplementary information: All glyphosate levels many orders of magnitude lower than the ADI.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
399	Kongtip P. et al.	CA 5.9.4	2019	Thyroid Hormones in Conventional and Organic Farmers in Thailand.	International journal of environmental research and public health (2019), Vol. 16, No. 15, pp. 2704	5.4.1 case b) Relevant but supplementary information: The higher incidence of thyroid disease in women (more numerous in organic farming), no data on the menopausal status of the women (change in thyroid hormones), the collection of data within dairies of the farmers may be incomplete, the exposure of farmers to pesticides prior to the study and prior to starting organic farming, and the results for glyphosate should have been examined for confounding from other pesticides that were correlated with glyphosate use. Moreover, the use rate and bioavailability (Acquavella et al. (2004) Environmental Health Perspectives Vol. 112(3), 321-326; Acquavella et al. (2006) Epidemiology, Vol. 17(1), 69-74) of glyphosate was lower than that of the other pesticides used. Since the determination of serum thyroid hormone levels is key in this study, the methods of analysis should have been better documented. This publication is considered unreliable.
400	Kuhn R. et al.	CA 7.1.2.1.2	2017	Identification of the Complete Photodegradation Pathway of Ethylenediaminetetra(methylenephosphonic acid) in Aqueous Solution	Clean: Soil, Air, Water (2017), Vol. 45, No. 5, pp. 1	5.4.1 case b) Relevant but supplementary information: Paper describes another source of AMPA other than glyphosate - supplemental information.
401	Kumar M. S. A. et al.	CA 8.2.4	2013	Toxic impacts of two organophosphorus pesticides on the acetylcholinesterase activity and biochemical composition of freshwater fairy shrimp Streptocephalus dichotomus.	International Journal of Pharma and Bio Sciences (2013), Vol. 4, No. 2, pp. B-966	5.4.1 case b) Relevant but supplementary information: The test does not follow a recognised test guideline. There are no details on the test design used in the exposure part of the test, such as test media preparation and test vessels / replication details, and the water quality / environmental conditions during the exposure period. Nor are there any validity criteria stated, which are necessary to establish the acceptability of the study (eg. shrimp cyst hatching success and the percentage survival in the control group in both toxicity tests). There are no biological data presented to confirm the reported LC50 values. There is no rationale described justifying the duration of exposure. Details on the test substances used in the test are not presented and there is no analytical verification of test concentrations, so exposure levels cannot be verified. The study is considered unreliable.
402	Kurenbach B. et al.	CA 5.8	2015	Sublethal exposure to commercial formulations of the herbicides dicamba, 2,4-dichlorophenoxyacetic acid, and glyphosate cause changes in antibiotic susceptibility in Escherichia coli and Salmonella enterica serovar Typhimurium.	mBio (2015), Vol. 6, No. 2, pp. E00009	5.4.1 case b) Relevant but supplementary information: Endpoints at doses tested not relevant to resides levels or to human health.
403	Kwiatkowska M. et al.	CA 5.8	2014	The effect of glyphosate, its metabolites and impurities on erythrocyte acetylcholinesterase activity.	Environmental toxicology and pharmacology (2014), Vol. 37, No. 3, pp. 1101	5.4.1 case b) Relevant but supplementary information: In vitro effects only noted at excessively high doses, 250-5000 uM.
404	Kylin H.	CA 7.5	2013	Time-integrated sampling of glyphosate in natural waters.	Chemosphere (2013), Vol. 90, No. 6, pp. 1821	5.4.1 case b) Relevant but supplementary information: Provides information on storage stability of surface water samples that can be used to evaluate results from other surface water monitoring studies.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
405	la Cecilia D. et al.	CA 7.1.1, CA 7.1.2	2018	Analysis of glyphosate degradation in a soil microcosm	Environmental pollution (2018), Vol. 233, pp. 201	5.4.1 case b) Relevant but supplementary information: Factors affecting chemical and microbial degradation of glyphosate.
406	la Cecilia D. et al.	CA 7.1.1.1	2018	Glyphosate dispersion, degradation, and aquifer contamination in vineyards and wheat fields in the Po Valley, Italy.	Water research (2018), Vol. 146, pp. 37	5.4.1 case b) Relevant but supplementary information: Numeric model used to predict glyphosate degradation in soil layers and concentrations of glyphosate and AMPA in shallow acquifer from use of glyphosate in vineyards and wheat fields in PoValley, Italy. See Conclusions for results of interest. Since model, not directly relevant to risk assessment, supplementary only.
407	Lam C. H. et al.	CA 8.2.6	2020	Toxicity of herbicides to cyanobacteria and phytoplankton species of the San Francisco Estuary and Sacramento-San Joaquin River Delta, California, USA.	Journal of environmental science and health. Part A, Toxic/hazardous substances & environmental engineering (2020), Vol. 5, pp. 107	5.4.1 case b) Relevant but supplementary information: As the composition of the Roundup used in the test cannot be confirmed, the study must be considered as being supplementary. Roundup Custom is for aquatic uses so would not contain surfactants. It is not clear from the study if the product was tested with an approved surrfactant added or not as would be detailed on the label. There is limited information in the paper on the label. Roundup Custom is not the representative formulation for the renewal and aquatic uses are not on the current GAP table.
408	Langrand J. et al.	CA 5.9.2	2019	Increased severity associated with tallowamine in acute glyphosate poisoning.	Clinical toxicology (2020), Vol. 58, pp. 201	5.4.1 case b) Relevant but supplementary information: In this study, severe respiratory symptoms were also more frequently reported in the TA group. The surfactant properties of POEA are likely to cause aspiration pneumonitis which is a plausible explanation for the respiratory failure complicating severe GBF poisoning cases.
409	Larsen K. et al.	CA 5.3	2014	Effects of Sublethal Exposure to a Glyphosate-Based Herbicide Formulation on Metabolic Activities of Different Xenobiotic-Metabolizing Enzymes in Rats.	International journal of toxicology (2014), Vol. 33, No. 4, pp. 307	5.4.1 case b) Relevant but supplementary information: Formulation tested in vivo via drinking water (Roundup FULL II, 662 g/L potassium salt). Non-representative formulation for EU.
410	Larsen K. et al.	CA 5.8.2	2012	Effects of sub-lethal exposure of rats to the herbicide glyphosate in drinking water: glutathione transferase enzyme activities, levels of reduced glutathione and lipid peroxidation in liver, kidneys and small intestine.	Environmental toxicology and pharmacology (2012), Vol. 34, No. 3, pp. 811	5.4.1 case b) Relevant but supplementary information: Only 2 dose levels were used with only 4 animals per sex and per group. Effects were found on GSH in liver at sub-mg/kg bw dose levels which is not concordant with liver effects seen in regulatory toxicology studies performed at much higher dose levels. This publication is considered unreliable.
411	Larsson M. O. et al.	CA 6.9	2017	Quantifying dietary exposure to pesticide residues using spraying journal data	Food and Chemical Toxicology (2017), Vol. 105, pp. 407	5.4.1 case b) Relevant but supplementary information: Estimate of glyphosate exposure based on spray data in DK. Supplemental to risk assessment.
412	Larsson M. O. et al.	CA 6.9	2018	Refined assessment and perspectives on the cumulative risk resulting from the dietary exposure to pesticide residues in the Danish population	Food and Chemical Toxicology (2018), Vol. 111, pp. 207	5.4.1 case b) Relevant but supplementary information: Refined dietary risk assessment for Danish population. Supplementary to DRA included in submission.
413	LaVerda N. L. et al.	CA 5.9.4	2015	Pesticide Exposures and Body Mass Index (BMI) of Pesticide Applicators From the Agricultural Health Study	Journal of Toxicology and Environmental Health, Part A: Current Issues (2015), Vol. 78, No. 20, pp. 1255	5.4.1 case b) Relevant but supplementary information: No relevant endpoint for risk assessment.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
414	Le Mer C. et al.	CA 8.2.1	2013	Effects of chronic exposures to the herbicides atrazine and glyphosate to larvae of the threespine stickleback (Gasterosteus aculeatus).	Ecotoxicology and environmental safety (2013), Vol. 89, pp. 174	5.4.1 case b) Relevant but supplementary information: The glyphosate analytical concentrations were highly variable, but overall based on the 2008 dataset, the mean measured values were within 25% of the nominal exposure concentrations. The sticklebacks were obtained from the natural environment and therefore prior exposure to chemicals cannot be discounted, although the fish were selected from the same location in two different years and achieved similar assay results in both years. The test system was considered robust based on the performance of the two positive control groups. Concerning the test design, the study was conducted according to methods described in Hahlbeck (2004) 'The juvenile threespined stickleback (Gasterosteus aculeatus L.) as a model organism for endocrine disruption: I. Sexual differentiation' whilst all available information is presented in this paper, the environmental conditions employed during the chronic exposure part of the test are not confirmed and validity criteria are not clearly stated. The achieved measured concentrations were also lower than is required for this study type and analysis in one of the two studies described was not complete. Whether the study was conducted according to GLP cannot be confirmed from the paper. Given some of the uncertainty over elements of the test design, the study should be considered unreliable.
415	Le Tien D. et al.	CA 5.5	2013	Comments on "Long term toxicity of a Roundup herbicide and a Roundup-tolerant genetically modified maize"	Food and Chemical Toxicology (2013), Vol. 53, pp. 443	5.4.1 case b) Relevant but supplementary information: Letter to the Editor, Comment on Seralini et al._2012_Food Chemical Toxicol (2012), retracted
416	Lebov J. F. et al.	CA 5.9.4	2015	Pesticide exposure and end-stage renal disease risk among wives of pesticide applicators in the Agricultural Health Study	Environmental Research (2015), Vol. 143, No. Part_A, pp. 198	5.4.1 case b) Relevant but supplementary information: Glyphosate was not associated with ESRD, but this study did not have the detail necessary to provide reliable information. Mostly speculative information about exposure to glyphosate and other pesticides. This publication is considered unreliable.
417	Leccia F. et al.	CA 8.3	2016	Disruption of the chemical communication of the European agrobiont groundaX80X90dwelling spider Pardosa agrestis by pesticides	Journal of applied entomology (2016), Vol. 140, No. 8, pp. 609	5.4.1 case b) Relevant but supplementary information: Endpoints based on the impact of chemicals on spider pheromones are not used/required in EU level ecotoxicological risk assessments.
418	Ledoux M. L. et al.	CA 6.10.1	2020	Penetration of glyphosate into the food supply and the incidental impact on the honey supply and bees.	Food Control (2020), Vol. 109, pp. 106859	5.4.1 case b) Relevant but supplementary information: This publication is a review and does not provide any original data, but summarizes relevant data on honey.
419	Lee B. K. et al.	CA 5.9.5	2012	Continuous renal replacement therapy in a patient with cardiac arrest after glyphosate-surfactant herbicide poisoning.	Hong Kong Journal of Emergency Medicine (2012), Vol. 19, No. 3, pp. 214	5.4.1 case b) Relevant but supplementary information: This is a report about multi-organ failure and the use of CVVHD after suicidal ingestion of formulated glyphosate and should not impact re-registration.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
420	Lee D. H. et al.	CA 5.9.5	2017	Severe glyphosate-surfactant intoxication: Successful treatment with continuous renal replacement therapy.	Hong Kong Journal of Emergency Medicine (2017), Vol. 24, No. 1, pp. 40	5.4.1 case b) Relevant but supplementary information: This is a report about multi-organ failure and the use of dialysis after suicidal ingestion of formulated glyphosate and should not impact re-registration.
421	Lee GaWon et al.	CA 5.2.1	2018	Glyphosate surfactant herbicide toxicosis in a dog with hindlimb paresis and urinary incontinence	Journal of Veterinary Clinics (2018), Vol. 35, No. 4, pp. 144	5.4.1 case b) Relevant but supplementary information: Acute Pet Exposure which should not impact the re-registration.
422	Lee M-J. et al.	CA 5.9.2	2019	Hemodynamic changes after infusion of intravenous lipid emulsion to treat refractory hypotension caused by glyphosate-surfactant herbicide poisoning A case report.	Medicine (2019), Vol. 98, No. 3, pp. Article No.: e14156	5.4.1 case b) Relevant but supplementary information: This is an article describing the use of lipid emulsion in a suicidal overdose of formulated glyphosate. This has been well described in the literature as a possible intervention in critically ill patients.
423	Lee W. J. et al.	CA 5.9.5	2012	Incidence of acute occupational pesticide poisoning among male farmers in South Korea	American Journal of Industrial Medicine (2012), Vol. 55, No. 9, pp. 799	5.4.1 case b) Relevant but supplementary information: This article describes a survey performed to assess the incidence of pesticide poisoning in S. Korea. The researchers interviewed 1958 farmers and asked if they exhibited any of the 21 following symptoms: nausea, vomiting, diarrhoea, sore throat, runny nose, dyspnea, headache, dizziness, hyperactivity, profuse sweating, blurred vision, paresthesia, slurred speech, paralysis, chest pain, syncope, muscle weakness,skin irritation, eye irritation, lacrimation , and fatigue. Based on these answers they categorized the farmers into mild, moderate or severe occupational exposure categories. There were 26 formulated glyphosate exposures 17 mild and 9 moderate, with zero fatalities. Based on this self-reported exposure data, they made the following claim: "acute occupational pesticide poisoning was 24.7 (95% CI 22.1–27.2) per 100 male farmers, which corresponds to 209,512 cases across South Korea in 2010." This report supports the data that occupational exposure to glyphosate based products have a very low toxicity profile.
424	Lemma T. et al.	CA 5.8.2	2019	Disruption of giant unilamellar vesicles mimicking cell membranes induced by the pesticides glyphosate and picloram	Biophysical chemistry (2019), Vol. 250, pp. 106176	5.4.1 case b) Relevant but supplementary information: Novel assays and endpoints not applicable/reliable for risk assessment.
425	Lenkowski J. R. et al.	CA 8.1.4	2010	Low concentrations of atrazine, glyphosate, 2,4-dichlorophenoxyacetic acid, and triadimefon exposures have diverse effects on Xenopus laevis organ morphogenesis.	Journal of environmental sciences (2010), Vol. 22, No. 9, pp. 1305	5.4.1 case b) Relevant but supplementary information: Toxicity of glyphosate and other chemistry to amphibians to assess malformations, up to 5 mg/L. Static renewal at 24 hr in 48 hr study. Conducted in the US. No relevant endpoint generated for the glyphosate RA renewal.
426	Leon M. E. et al.	CA 5.9.4	2019	Pesticide use and risk of non-Hodgkin lymphoid malignancies in agricultural cohorts from France, Norway and the USA: a pooled analysis from the AGRICOH consortium.	International journal of epidemiology (2019), Vol. 1, No. 48, pp. 1519	5.4.1 case b) Relevant but supplementary information: Due to an error prone exposure methodology and the attendant inability to control confounding. We also note that the results for the Norwegian cohort conflict with the AHS results where exposure is determined more specifically and where there is no relationship between glyphosate and DLBCL among individuals in the highest exposed quartile (≥ 108 days). This publication is considered unreliable.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
427	Li H. et al.	CA 7.1.1, CA 7.1.2	2016	Degradation and Isotope Source Tracking of Glyphosate and Aminomethylphosphonic Acid.	Journal of agricultural and food chemistry (2016), Vol. 64, No. 3, pp. 529	5.4.1 case b) Relevant but supplementary information: Provides information on the molecular mechanism of glyphosate degradation. No information relevant for route of degradation.
428	Li Jia et al.	CA 8.2	2017	Acute toxicity study of glyphosate and cyhalofop-butyl to Daphnia carinata.	Acta Prataculturae Sinica (2017), Vol. 26, No. 9, pp. 148	5.4.1 case b) Relevant but supplementary information: The herbicides evaluated in the study were a 41% glyphosate isopropylamine saline water agent. The study was not conducted according to GLP and the test substance source could not be verified. The authors state that glyphosate has an obvious dose-effect relation to the moving inhibition and fatality rate of Daphnia carinatas. The routinely used concentration of the two is significantly higher than the LC50 and is strongly toxic to Daphnia carinatas. However, given the lack of standard guidelines, an unclear method design and approach, as well as challenges in interpreting the study results make reaching any conclusions arising from the study challenging at best.
429	Li Jiao et al.	CA 8.2	2010	Acute Toxicity of Eight Pesticides on the Development of Sea Urchin Embryos.	Asian Journal of Ecotoxicology (2010), Vol. 5, No. 2, pp. 255	5.4.1 case b) Relevant but supplementary information: The study of the toxicity to the sea urchin embryos, was not conducted or based on a relevant guideline. Test concentrations were from 0.1 to 50 mg/L of glyphosate technical. The relationship between EC50 and LogP values was the main discussion of the article.
430	Liao L-H. et al.	CA 8.3.1	2017	Behavioral responses of honey bees (Apis mellifera) to natural and synthetic xenobiotics in food.	Scientific reports (2017), Vol. 7, No. 1, pp. 15924	5.4.1 case b) Relevant but supplementary information: Presented data based on preference behaviour of honey bees cannot be directly related to an EU level ecotoxicological risk assessment - may possibly be used to support a lack of effects despite evidence being based upon preference.
431	Liao Y. et al.	CA 6.9	2018	Validation and application of analytical method for glyphosate and glufosinate in foods by liquid chromatography-tandem mass spectrometry.	Journal of chromatography. A (2018), Vol. 1549, pp. 31	5.4.1 case b) Relevant but supplementary information: This is primarily an analytical method paper, but does include EU monitoring results on 136 food samples (only 2 residues detected).
432	Lieshchova M. A. et al.	CA 5.3	2018	Combined effect of glyphosphate, saccharin and sodium benzoate on rats.	Regulatory Mechanisms in Biosystems (2018), Vol. 9, No. 4, pp. 591	5.4.1 case b) Relevant but supplementary information: Substantially lower water consumption in glyphosate only group confounds data and makes endpoint comparisons meaningless.
433	Lin JingWen et al.	CA 8.6	2015	Toxic effect of glyphosate on seed germination and seedling growth of Chinese fir.	Acta Agriculturae Universitatis Jiangxiensis (2015), Vol. 37, No. 5, pp. 843	5.4.1 case b) Relevant but supplementary information: The study was not conducted to GLP, but it is well documented although no relevant guidelines have been followed. The authors state that the seed germination rate as well as the root length, stem length, leaf length and fresh weight of seedlings decreased significantly with the increase of glyphosate and the root length was more sensitive to glyphosate than other indexes. It was concluded that there is an inhibitory effect of glyphosate on Chinese fir seeds and seedlings, which led to antioxidant enzyme dysfunction, oxidative damage of cells and reduced chlorophyll synthesis. No analytical verification of the test item concentrations was performed, and the findings do not generate endpoints relevant to the regulatory risk assessment of glyphosate.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
434	Ling C. et al.	CA 5.9.4	2018	Prenatal Exposure to Ambient Pesticides and Preterm Birth and Term Low Birthweight in Agricultural Regions of California.	Toxics (2018), Vol. 6, No. 3, pp. E41	5.4.1 case b) Relevant but supplementary information: Unproven assumption that residence near land treated with pesticides equates to meaningful exposure. Glyphosate biomonitoring would suggest that is highly implausible. Also, residence on birth certificates is an uncertain indicator of residential proximity to treated land during pregnancy. This publication is considered unreliable.
435	Ling S. L. et al.	CA 5.9.5	2018	Workplace chemical and toxin exposures reported to a Poisons Information Centre: A diverse range causing variable morbidity.	European Journal of Emergency Medicine (2018), Vol. 25, No. 2, pp. 134	5.4.1 case b) Relevant but supplementary information: This article describes the characteristics of toxin/chemical exposures reported to an Austrailian poison center. Glyphosate is mentioned in 1 table only with no description of effects.
436	Liu Xiao-wei et al.	CA 8.2.4.2, CA 8.2.5.2	2012	Toxicological effect of paraquat and glyphosate on cladoceran Moina macrocopa.	Shengtaixue Zazhi (2012), Vol. 31, No. 8, pp. 1984	5.4.1 case b) Relevant but supplementary information: The conclusions are unclear based on several factors including the impact of the density of the algal food source and the temperature of the test media. This study is not adequately described – for example, water quality / environmental conditions cannot be confirmed from the paper, there were no validity criteria stated and no analytical verification of exposure concentrations was undertaken. Given the uncertainty over the test design and the procedures undertaken and the fact that the study was not conducted according to a recognised test guideline relevant for the EU risk assessment, the test is considered as unreliable.
437	Lopez Gonzalez E. C. et al.	CA 5.4	2017	Micronuclei and other nuclear abnormalities on Caiman latirostris (Broad-snouted caiman) hatchlings after embryonic exposure to different pesticide formulations.	Ecotoxicology and environmental safety (2017), Vol. 136, pp. 84	5.4.1 case b) Relevant but supplementary information: This study looks at the impact of pesticide formulations on the nuclear developments of Caimen embryos via topical application to their eggs shells after laying. The endpoints achieved cannot be related to EU risk assessment.
438	Lu Li-li et al.	CA 8.3.2, CP 10.3.2	2010	Effects of glyphosate on the growth and development of Agasicles hygrophila	Huanan Nongye Daxue Xuebao (2010), Vol. 31, pp. 22	5.4.1 case b) Relevant but supplementary information: The test substance is 41% glyphosate IPA salt. The study on Agasicles hygrophila was not conducted or based on a relevant NTA guideline.
439	Lugowska K.	CA 8.2.2.1, CP 10.2.3	2018	The effects of Roundup on gametes and early development of common carp (Cyprinus carpio L)	Fish physiology and biochemistry (2018), Vol. 44, No. 4, pp. 1109	5.4.1 case b) Relevant but supplementary information: The material and methods part of the study lack some important information. The preparation of test solutions is missing. The time course of the experiment is unclear. Furthermore, there was no analytical verification of test concentrations reported. Suitable exposure throughout the study was not demonstrated and thus the reliability of the study is questionable. The performance / validity of the test cannot be confirmed as there was no positive control included validity criteria were not stated. No regulatory endpoint useful for risk assessment is given. The study is not to a guideline and is not GLP.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
440	Luo W. et al.	CA 5.9.5	2019	Surgical treatment of pyloric stenosis caused by glyphosate poisoning: A case report.	Medicine (2019), Vol. 98, No. 30, pp. e16590	5.4.1 case b) Relevant but supplementary information: This article describes a case report of gastric ulceration and swelling causing pyloric obstruction in a patient who ingested formulated glyphosate. This is not unexpected as formulations contain surfactants which can cause caustic injury to the GI tract with suicidal ingestions. This should not impact re-registration.
441	Mahendrakar K. et al.	CA 5.9.5	2014	Glyphosate surfactant herbicide poisoning and management.	Indian journal of critical care medicine (2014), Vol. 18, No. 5, pp. 328	5.4.1 case b) Relevant but supplementary information: ILE has been proposed as a possible therapy for formulated glyphosate overdoses.
442	Maillard E. et al.	CA 7.5	2012	Removal of dissolved pesticide mixtures by a stormwater wetland receiving runoff from a vineyard catchment: an inter-annual comparison	International journal of environmental analytical chemistry (2012), Vol. 92, No. 8, pp. 979	5.4.1 case b) Relevant but supplementary information: Confirmatory data showing storm water wetlands removed glyphosate/AMPA from agricultural runoff.
443	Mailler R. et al.	CA 7.5	2014	Biofiltration vs conventional activated sludge plants: what about priority and emerging pollutants removal?	Environmental Science and Pollution Research (2014), Vol. 21, No. 8, pp. 5379	5.4.1 case b) Relevant but supplementary information: Paper compares glyphosate removal in waste water treatment by two primary and two biological treatments.
444	Malhotra R. C. et al.	CA 5.9	2010	Glyphosate-surfactant herbicide-induced reversible encephalopathy.	Journal of clinical neuroscience (2010), Vol. 17, No. 11, pp. 1472	5.4.1 case b) Relevant but supplementary information: This paper describes prolonged encephalopathy in a suicidal glyphosate ingestion. There is no mention of the medication that was used for sedation while the patient was intubated in the ICU. Accumulations of lorazepam and other sedatives may result in prolonged coma. In formulated glyphosate overdose with multi-organ failure it is common to sedate patients until their haemodynamics improve. As this document encompasses suicidal overdose, this paper should not impact re-registration.
445	Mandiki S. N. M. et al.	CA 7.5	2014	Effect of land use on pollution status and risk of fish endocrine disruption in small farmland ponds	Hydrobiologia (2014), Vol. 723, No. 1, pp. 103	5.4.1 case b) Relevant but supplementary information: Provides glyphosate concentrations in 15 Belgian ponds in different seasons and different land uses. End-points cannot be used directly in the risk assessment for the renewal of glyphosate at EU level. Only summary glyphosate concentrations available.
446	Manfo F. P. T. et al.	CA 5.6	2012	Effect of agropesticides use on male reproductive function: A study on farmers in Djutitsa (Cameroon)	Environmental Toxicology (2012), Vol. 27, No. 7, pp. 423	5.4.1 case b) Relevant but supplementary information: No glyphosate specific conclusions, confounded due to multiple pesticide uses.
447	Maqueda C. et al.	CA 7.1.3.1.1, CA 7.2.1.3	2017	Behaviour of glyphosate in a reservoir and the surrounding agricultural soils.	The Science of the total environment (2017), Vol. 593-594, pp. 787	5.4.1 case b) Relevant but supplementary information: Confirmatory data on sorption and water/sediment behaviour and natural water photolysis of glyphosate.
448	Mariager T. P. et al.	CA 5.9.2	2013	Severe adverse effects related to dermal exposure to a glyphosate-surfactant herbicide.	Clinical toxicology (2013), Vol. 51, No. 2, pp. 111	5.4.1 case b) Relevant but supplementary information: No new effects are discussed in the publication. Adverse effects of formulations in case of dermal exposure are well known. The data should not impact the re-registration.
449	McClellan R. O.	CA 5.5	2016	Evaluating the potential carcinogenic hazard of glyphosate.	Critical reviews in toxicology (2016), Vol. 46, No. sup1, pp. 1	5.4.1 case b) Relevant but supplementary information: Forward by Editor in Chief to a special edition on glyphosate in Critical Reviews in Toxicology.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
450	McQueen H. et al.	CA 6.9	2012	Estimating maternal and prenatal exposure to glyphosate in the community setting.	International journal of hygiene and environmental health (2012), Vol. 215, No. 6, pp. 570	5.4.1 case b) Relevant but supplementary information: Study estimated dietary exposure of pregnant women to glyphosate by survey and food analysis. Exposure is well within the National Estimated Daily Intake.
451	Mesnage R. et al.	CA 5.5	2017	Multiomics reveal non-alcoholic fatty liver disease in rats following chronic exposure to an ultra-low dose of Roundup herbicide.	Scientific reports (2017), Vol. 7, pp. 39328	5.4.1 case b) Relevant but supplementary information: Formulation tested (Roundup, composition not described). Livers obtained from research of republished retreated Seralini rat study.
452	Mesnage R. et al.	CA 5.8	2013	Ethoxylated adjuvants of glyphosate-based herbicides are active principles of human cell toxicity.	Toxicology (2013), Vol. 313, No. 2-3, pp. 122	5.4.1 case b) Relevant but supplementary information: Formulations, surfactants and glyphosate tested in vitro. Effects attributable to surfactant cytotoxicity.
453	Mesnage R. et al.	CA 5.8	2017	Facts and Fallacies in the Debate on Glyphosate Toxicity.	Frontiers in public health (2017), Vol. 5, pp. 316	5.4.1 case b) Relevant but supplementary information: review, secondary source.
454	Mesnage R. et al.	CA 5.8	2014	Major pesticides are more toxic to human cells than their declared active principles.	BioMed research international (2014), Vol. 2014, pp. 179691	5.4.1 case b) Relevant but supplementary information: In vitro cytotoxicity data at high doses not informative for hazard characterization.
455	Mesnage R. et al.	CA 5.8.2	2015	Potential toxic effects of glyphosate and its commercial formulations below regulatory limits.	Food and chemical toxicology (2015), Vol. 84, pp. 133	5.4.1 case b) Relevant but supplementary information: review, secondary source.
456	Mesnage R. et al.	CA 5.9.1	2012	Glyphosate exposure in a farmer's family.	Journal of Environmental Protection (2012), Vol. 3, No. 9, pp. 1001	5.4.1 case b) Relevant but supplementary information: Glyphosate measured in urine of farmer and family.
457	Milesi M. M. et al.	CA 5.6.1	2018	Perinatal exposure to a glyphosate-based herbicide impairs female reproductive outcomes and induces second-generation adverse effects in Wistar rats.	Archives of toxicology (2018), Vol. 92, No. 8, pp. 2629	5.4.1 case b) Relevant but supplementary information: Glyphosate based herbicide (54% glyphosate acid equivalents as the K salt) dosed to pregnant rats.
458	Milesi M. M. et al.	CA 5.6.1	2019	Response to comments on: Perinatal exposure to a glyphosate-based herbicide impairs female reproductive outcomes and induces second-generation adverse effects in Wistar rats.	Archives of toxicology (2019), Vol. 93, No. 12, pp. 3635	5.4.1 case b) Relevant but supplementary information: Glyphosate based herbicide (54% glyphosate acid equivalents as the K salt) dosed to pregnant rats.
459	Mills P. J. et al.	CA 5.9.1	2017	Excretion of the Herbicide Glyphosate in Older Adults Between 1993 and 2016.	Journal of the American Medical Association (2017), Vol. 318, No. 16, pp. 1610	5.4.1 case b) Relevant but supplementary information: Not relevant for EU toxicology risk assessment but supplementary information on human exposure.
460	Mills P. J. et al.	CA 5.9.1	2018	Excretion of the herbicide glyphosate in older adults between 1993 and 2016 (vol 318, pg 1610, 2017)	Journal of the American Medical Association (2018), Vol. 319, No. 13, pp. 1386	5.4.1 case b) Relevant but supplementary information: Correction to Mills et al._2017, Journal of the American Medical Association (2017), Vol. 318, No. 16, pp. 1610-1611.
461	Mills P. J. et al.	CA 5.9.2	2018	Erratum: Excretion of the herbicide glyphosate in older adults between 1993 and 2016.	Journal of the American Medical Association (2018), Vol. 319, No. 13, pp. 1386	5.4.1 case b) Relevant but supplementary information: Erratum listing undisclosed conflicts of interest on a previous paper, Mills_2017, Journal of the American Medical Association (2017), Vol. 318, No. 16, pp. 1610-1611.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
462	Mills P. J. et al.	CA 5.9.2	2020	Glyphosate Excretion is Associated With Steatohepatitis and Advanced Liver Fibrosis in Patients With Fatty Liver Disease.	Clinical gastroenterology and hepatology (2020), Vol. 8, pp. 741	5.4.1 case b) Relevant but supplementary information: No new information without clear relevance for the risk assessment. This paper should not impact the re-registration.
463	Mills P. J. et al.	CA 5.9.2	2018	Undisclosed conflicts of interest	Journal of the American Medical Association (2018), Vol. 319, No. 13, pp. 1386	5.4.1 case b) Relevant but supplementary information: Correction to Mills et al._2017, Journal of the American Medical Association 2017, Vol. 318, No. 16, pp. 1610-1611.
464	Mink P. J. et al.	CA 5.9.4	2011	Epidemiologic studies of glyphosate and non-cancer health outcomes: a review.	Regulatory toxicology and pharmacology (2011), Vol. 61, No. 2, pp. 172	5.4.1 case b) Relevant but supplementary information: This is an epidemiology review article on non-cancer endpoints.
465	Mink P. J. et al.	CA 5.9.4	2012	Epidemiologic studies of glyphosate and cancer: a review.	Regulatory toxicology and pharmacology (2012), Vol. 63, No. 3, pp. 440	5.4.1 case b) Relevant but supplementary information: review, secondary source.
466	Mise M.	CA 5.9.4	2011	Epidemiological study of glyphosate herbicide poisoning.	The Japanese journal of toxicology (2011), Vol. 24, No. 1, pp. 69	5.4.1 case b) Relevant but supplementary information: Epidemiological analysis of acute poisoning cases due to oral ingestion of glyphosate (suicide attempts), clinical symptoms such as metabolic acidosis, hyperkalemia, electrocardiogram abnormalities are known effects and should not impact the re-registration.
467	Mohamed F. et al.	CA 5.9.5	2016	Mechanism-specific injury biomarkers predict nephrotoxicity early following glyphosate surfactant herbicide (GPSH) poisoning.	Toxicology letters (2016), Vol. 258, pp. 1	5.4.1 case b) Relevant but supplementary information: This article discusses the use of biomarkers to predict kidney injury in formulated glyphosate overdose and predictors of nephrotoxicity in suicidal ingestions and therefore should not impact registration decisions.
468	Mohamed I. A-w. et al.	CA 8.2.8	2016	Unique efficacy of certain novel herbicides against Culex pipiens (Diptera: Culicidae) mosquito under laboratory conditions	Advances in Environmental Biology (2016), Vol. 10, No. 8, pp. 104	5.4.1 case b) Relevant but supplementary information: Important information is missing in the material and methods section. The preparation and application of the test solutions as well as the tested concentration range were not reported. The test items were not adequately specified. It is not clear whether the test concentrations refer to the product or to the active substance. Moreover one active ingredient is given as glyphosate isopropylamine which should be formulated as a salt resulting in test concentrations as acid equivalents. In addition, the biological results of the test were not sufficiently stated. No mortality data for the test concentrations nor for the controls was given to evaluate the results. Furthermore, there was no analytical verification of test concentrations reported. The study is not to a guideline and is not GLP. The study is considered unreliable.
469	Moon J. M. et al.	CA 5.9	2010	Predicting acute complicated glyphosate intoxication in the emergency department.	Clinical toxicology (2010), Vol. 48, No. 7, pp. 718	5.4.1 case b) Relevant but supplementary information: The results of this study showed that age > 50 years, X-ray abnormalities, and ALT > 40 U/L were significant predictive factors for complications in patients with glyphosate surfactant herbicide poisoning; patients with these findings might require admission to the intensive care unit.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
470	Moon J. M. et al.	CA 5.9.2	2018	Cardiovascular Effects and Fatality May Differ According to the Formulation of Glyphosate Salt Herbicide.	Cardiovascular toxicology (2018), Vol. 18, No. 1, pp. 99	5.4.1 case b) Relevant but supplementary information: Preliminary results without investigation of other factors contributing to such effects.
471	Moon J. M. et al.	CA 5.9.5	2016	The characteristics of emergency department presentations related to acute herbicide or insecticide poisoning in South Korea between 2011 and 2014.	Journal of toxicology and environmental health. Part A (2016), Vol. 79, No. 11, pp. 466	5.4.1 case b) Relevant but supplementary information: This study showed a decrease in the case fatality rate of suicidal pesticide ingestions between 2011-2014 in South Korea. This clearly demonstrates that herbicides with a lower acute toxicity profile are associated with lower mortality in suicidal ingestions.
472	Mottier A. et al.	CA 8.2.8	2013	Effects of glyphosate-based herbicides on embryo-larval development and metamorphosis in the Pacific oyster, Crassostrea gigas.	Aquatic toxicology (2013), Vol. 128-129, pp. 67	5.4.1 case b) Relevant but supplementary information: The study was not conducted to GLP and/or according to a recognized test guideline and there are no validity criteria presented. The authors state that the EC50 values computed for the embryotoxicity tests with glyphosate and AMPA were lower than the values reported for regulatory model organisms. The embryotoxicity test appeared more sensitive but also a little more difficult to assess compared to the metamorphosis assay. Given the limitations cited, the study is considered unreliable.
473	Mueller U. et al.	CA 5.9.1	2012	Comment on "Maternal and fetal exposure to pesticides associated to genetically modified foods in Eastern Townships of Quebec, Canada".	Reproductive Toxicology (2012), Vol. 33, No. 3, pp. 401	5.4.1 case b) Relevant but supplementary information: Letter to the Editor, Comments on Aris et al._2011, Reprod. Toxicol (2011), Vol. 31, pp. 528-533.
474	Munz N. et al.	CA 7.5	2012	Pesticide measurements in watercourses	Aqua & Gas (2012), Vol. 92, No. 11, pp. 32	5.4.1 case b) Relevant but supplementary information: Describes evaluation of concentrations of glyphosate and other PPP's and biocides from flowing water bodies of different sizes in Switzerland. Total 545 sites (32 sites for glyphosate). Only data presented is Maximum and Mean concentrations across all sites.
475	Muskus A. M. et al.	CA 7.1.1.1, CA 7.1.2.1.1	2019	Effect of temperature, pH and total organic carbon variations on microbial turnover of (13)C3(15)N-glyphosate in agricultural soil.	The Science of the total environment (2019), Vol. 658, pp. 697	5.4.1 case b) Relevant but supplementary information: Study of effect of temperature, soil pH, total organic carbon on degradation of 13C and 15N glyphosate to nonextractable residues. Study conducted in Germany. Provides supplemental information as non-extractable residues are not directly considered in the risk assessment.
476	Mutzner L. et al.	CA 7.5	2016	Model-based screening for critical wet-weather discharges related to micropollutants from urban areas.	Water research (2016), Vol. 104, pp. 547	5.4.1 case b) Relevant but supplementary information: Model to predict glyphosate concentration from storm water outlets and combined sewer overflows. Glyphosate does not exceed EQS based on conservative modeling. Not directly relevant for risk assessment but useful information.
477	Nakae H. et al.	CA 5.9.5	2015	Paralytic ileus induced by glyphosate intoxication successfully treated using Kampo medicine.	Acute medicine & surgery (2015), Vol. 2, No. 3, pp. 214	5.4.1 case b) Relevant but supplementary information: This article describes alternative medicine therapies that were used to treat a Japanese woman with a paralytic ileus after glyphosate ingestion. It is not uncommon for patients in a critical care setting to develop an ileus. These tend to resolve on their own without intervention. I cannot be commented on whether this intervention increases GI motility.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
478	Nakayama T. et al.	CA 5.9.5	2019	Renal cortical hypoperfusion caused by glyphosate-surfactant herbicide.	Clinical and experimental nephrology (2019), Vol. 23, No. 6, pp. 865	5.4.1 case b) Relevant but supplementary information: This was a suicidal ingestion of formulated glyphosate that resulted in poor renal perfusion & multiorgan failure. Since this was a suicidal ingestion, the outcome is not unexpected and should not impact the re-egistration.
479	Nathan V. K. et al.	CA 8.5	2020	Pesticide application inhibit the microbial carbonic anhydrase-mediated carbon sequestration in a soil microcosm.	Environmental science and pollution research international (2020), Vol. 27, pp. 4468	5.4.1 case b) Relevant but supplementary information: Endpoints presented are not relevant to the direct effects assessment required for Annex I renewal. However, it does inform in other areas, e.g biodiversity / benefits of glyphosate use.
480	Nedopitanska N. M.	CA 5.5	2011	Problem of the carcinogenic danger of glyphosate; new data	Sovremennye Problemy Toksikologii (2011) No. 1-2, pp. 5	5.4.1 case b) Relevant but supplementary information: review, secondary source.
481	Nevius B. A. et al.	CA 8.4.2	2012	Surface-functionalization effects on uptake of fluorescent polystyrene nanoparticles by model biofilms.	Ecotoxicology (2012), Vol. 21, No. 8, pp. 2205	5.4.1 case b) Relevant but supplementary information: This paper discusses the results of an earthworm avoidance study which is not an endpoint type used in EU level risk assessment for Annex I renewal. Therefore it is considered to be supplementary. No effects were observed for glyphosate exposure.
482	Nguyen N. K. et al.	CA 7.1.2.1.1	2018	Large variation in glyphosate mineralization in 21 different agricultural soils explained by soil properties.	The Science of the total environment (2018), Vol. 627, pp. 544	5.4.1 case b) Relevant but supplementary information: Study of 21 European soils to determine factors influencing glyphosate mineralization. Exchangeable acidity identified as only univariate factor with negative correlation. NaOH extractable residues have strong negative correlation with glyphosate mineralizaiton. Doesn't fit risk assessment directly but provides useful information.
483	Niemann L. et al.	CA 5.9.2	2015	A critical review of glyphosate findings in human urine samples and comparison with the exposure of operators and consumers.	Journal fuer Verbraucherschutz und Lebensmittelsicherheit/Journal of Consumer Protection and Food Safety (2015), Vol. 10, No. 1, pp. 3	5.4.1 case b) Relevant but supplementary information: review, secondary source.
484	Nunez S. et al.	CA 8.5	2015	In vitro effect of N-(phosphonomethyl) glycine agrochemicals on total heterotrophic bacteria and azotobacter chroococcum.	Biocell (2015), Vol. 39, Suppl. 1. Abstract No.: A71.	5.4.1 case b) Relevant but supplementary information: Endpoints based on the effects of glyphosate on bacteria in soil are not considered in the EU level ecotox risk assessmen for Annex I renewal.
485	Okada E. et al.	CA 7.1.3.1.1, CA 7.1.4.1.1	2016	Adsorption and mobility of glyphosate in different soils under no-till and conventional tillage.	Geoderma (2016), Vol. 263, pp. 78	5.4.1 case b) Relevant but supplementary information: Soil adsorption data for glyphosate are reported but they are well within the numbers provided in the dossier.
486	Ollivier L.	CA 5.5	2013	A Comment on "Long term toxicity of a Roundup herbicide and a Roundup-tolerant genetically modified maize".	Food and Chemical Toxicology (2013), Vol. 53, pp. 458	5.4.1 case b) Relevant but supplementary information: Letter to the Editor, Comment on Seralini et al._2012_Food Chemical Toxicol (2012), retracted
487	Ololade I. A. et al.	CA 7.1.3	2014	Sorption of Glyphosate on Soil Components: The Roles of Metal Oxides and Organic Materials	Soil & sediment contamination (2014), Vol. 23, No. 5, pp. 571	5.4.1 case b) Relevant but supplementary information: No new data presented, therefore supplementary. This publication is also considered unreliable.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
488	Ordonez J. et al.	CA 5.9.5	2013	Non-Ethanol hyperlipasemia in toxicology consultation.	Clinical Toxicology (2013), Vol. 51, No. 7, pp. 703	5.4.1 case b) Relevant but supplementary information: This is a case series looking at the toxic causes of pancreatitis in overdose patients. One of whom had ingested formulated glyphosate. This should not imapct re-registration.
489	Owagboriaye F. et al.	CA 5.8.2	2019	Comparative studies on endogenic stress hormones, antioxidant, biochemical and hematological status of metabolic disturbance in albino rat exposed to roundup herbicide and its active ingredient glyphosate.	Environmental science and pollution research international (2019), Vol. 26, No. 14, pp. 14502	5.4.1 case b) Relevant but supplementary information: Purity not reported. Test species are not clearly and completely described. Insufficient information is given on the biochemical methods used. This publication is considered unreliable.
490	Owagboriaye F. O. et al.	CA 5.6	2017	Reproductive toxicity of Roundup herbicide exposure in male albino rat.	Experimental and toxicologic pathology (2017), Vol. 69, No. 7, pp. 461	5.4.1 case b) Relevant but supplementary information: Formulation tested in vivo (Roundup 441 g/L potassium salt, 360 g/L a.e.).
491	Ozaki T. et al.	CA 5.9.5	2017	Severe Glyphosate-Surfactant Intoxication Successfully Treated With Continuous Hemodiafiltration and Direct Hemoperfusion: Case Report.	Therapeutic apheresis and dialysis (2017), Vol. 21, No. 3, pp. 296	5.4.1 case b) Relevant but supplementary information: This article discusses the use of haemodialysis and haemofiltration in formulated glyphosate overdoses.This article discusses medical management of suicidal ingestions and therefore should not impact registration decisions.
492	Ozbay B. et al.	CA 7.1.3.1.1	2018	Sorption and desorption behaviours of 2,4-D and glyphosate in calcareous soil from Antalya, Turkey	Water and environment journal (2018), Vol. 32, No. 1, pp. 141	5.4.1 case b) Relevant but supplementary information: Test soil was selected to be representative for the region of Antalya, Turkey. The use of oven-dried soil is considered not appropriate for the risk assessment.
493	Padilla J. T. et al.	CA 7.1.3.1.1	2019	Interactions among Glyphosate and Phosphate in Soils: Laboratory Retention and Transport Studies.	Journal of environmental quality (2019), Vol. 48, No. 1, pp. 156	5.4.1 case b) Relevant but supplementary information: Study conducted with U.S. soils but shows that Kf values of glyphosate are lower in the presence of phosphate. Addition of phosphate also impacts glyphosate movement in soil columns. Kf values are in range of previously reported.
494	Paganelli A. et al.	CA 8.1.5	2010	Glyphosate-based herbicides produce teratogenic effects on vertebrates by impairing retinoic acid signaling.	Chemical research in toxicology (2010), Vol. 23, No. 10, pp. 1586	5.4.1 case b) Relevant but supplementary information: Study to look at the effect of glyphosate product on the developmental effects of xenopus laevis embryos. Glyphosate injected into embryos. No relevant endpoint generated for the regulatory risk assessment of glyphosate renewal. High concentrations, unrealistic route of exposure. Conducted in Argentina.
495	Palli E. et al.	CA 5.9.2	2011	Rapture of the large intestine caused by severe oral glyphosate-surfactant intoxication.	The American journal of emergency medicine (2011), Vol. 29, No. 4, pp. 459	5.4.1 case b) Relevant but supplementary information: This article describes corrosive injury to the transverse colon in a suicidal ingestion of formulated glyphosate. This is known to occur in suicidal overdoses and should not impact re-registration
496	Palma G.	CA 5.8.3	2011	Letter to the editor regarding the article by Paganelli et al.	Chemical research in toxicology (2011), Vol. 24, No. 6, pp. 775	5.4.1 case b) Relevant but supplementary information: Letter to the Editor, reply to Paganelli et al._2010, Chem. Res. Toxicol. (2010), Vol. 23, pp. 1586-1595.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
497	Pan LiPing et al.	CA 5.9	2016	Analysis of liver index of workers exposed to glyphosate	Journal of Environmental & Occupational Medicine (2016), Vol. 33, No. 4, pp. 380	5.4.1 case b) Relevant but supplementary information: This article examined the liver function in 345 workers exposed to glyphosate through manufacturing and 345 controls. The sample size is small, and it was claimed that there was a statitically signigicant difference between cholinesterase levels between groups. This is not related to glyphosate as it is not a cholinesterase inhibitor. It was also found that there were markers of liver pathology on ultrasound, which wouldn't be related to glyphosate as this has been extensively evaluated through GLP studies.
498	Pandey A. et al.	CA 5.8.3	2015	Analysis of endocrine disruption effect of Roundup(®) in adrenal gland of male rats.	Toxicology reports (2015), Vol. 2, pp. 1075	5.4.1 case b) Relevant but supplementary information: Formulation tested in vivo (Roundup, 41%, India).
499	Pandey P. et al.	CA 7.1.3.1.1	2019	Assessing Glyphosate and Fluridone Concentrations in Water Column and Sediment Leachate.	Frontiers in Environmental Science (2019), Vol. 7, pp. Article No.: 22	5.4.1 case b) Relevant but supplementary information: This U.S. study was aimed to improve the existing understanding of the deposition of herbicides from water column to bed sediment and leachate of herbicides from bed sediment to water column. The study was prompted by herbicide treatment of water for aquatic weeds. Results may provide useful information although not directly relevant for EU risk assessment.
500	Panettieri M. et al.	CA 8.6	2013	Glyphosate effect on soil biochemical properties under conservation tillage	Soil & tillage research (2013), Vol. 133, pp. 16	5.4.1 case b) Relevant but supplementary information: The paper describes different tillage techniques following use of glyphosate and the impact on soil properties. Not relateable directly to risk assessment for renewal but may be useful in the biodiversity and benefits discussions.
501	Panetto O. S. et al.	CA 8.2.2	2019	The effects of Roundup® in embryo development and energy metabolism of the zebrafish (Danio rerio)	Comparative biochemistry and physiology (2019), Vol. 222, pp. 74	5.4.1 case b) Relevant but supplementary information: The acute 96 hour-LC50 for zebrafish embryo after exposure to Roundup was determined to be 58.3 mg/L. Seven test concentrations between 3.5 and 350 mg/L were used with 4 replicates and 20 embryos each. It was stated that the test was performed based on OECD guideline 236. This study type has six validity criteria for the control group, including fertilization rate success (required ≥70% in batch tested), hatching rate at 96 hours (required ≥80%) and overall survival (required ≥90%). There is also a validity criteria requirement for the results of a positive control group, using 3, 4-dichloroaniline, to achieve a minimum of 30% mortality at 96 hours. There are also two water quality criteria relating to water temperature (required 26 ±1 ºC at any time during the test) and for dissolved oxygen at 96 hours to be > 80% of the saturation. Whilst dissolved oxygen levels at 6 mg O2/L were achieved in the test, the temperature was outside of the validity criteria limits, being maintained at 28 ±1 ºC for the study duration. Therefore the dissolved oxygen level cannot be confirmed as reporting of dissolved oxygen in terms of mg O2/L requires information on atmospheric pressure and temperature to resolve actual dissolved oxygen in terms of percentage saturation. A slight increase in temperature by a degree Celcius is not overly concerning,

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
						however, it is difficult to conclude on the reliability of the study as only one other validity criteria is mentioned, with respect to control survival, with 2% mortality achieved in the controls. There is no information presented on the fertilization rate of the batch of eggs used, nor is there hatching rates presented for the controls or the treatment groups. In addition, the performance of the test system cannot be confirmed as the results of a positive control group were not included. In addition, there are no biological data for the treatment groups presented other than in figures, so the data in the figures cannot be confirmed. Furthermore, claims that the achieved LC50 of 58.3 mg/L is 15,000 times lower than that used in agriculture is not supported by corresponding surface water monitoring data. A final point is that the test concentrations in the test system were not analytically verified and therefore, exposure concentrations cannot be confirmed. The study is considered unreliable.
502	Panwen M. et al.	CA 8.2.8, CP 10.2.1	2013	Acute toxicity of pesticides glyphosate and paraquat on river snails	Siliao Yanjiu (2013) No. 11, pp. 44	5.4.1 case b) Relevant but supplementary information: The material and methods sections lack important information. The test organisms were not specified. Detailed information on preparation and application of test solution is missing. The tested concentrations and the exposure time were not reported in the material and methods. The test item is not specified. It is only stated that it contains 10 % active ingredient, but other ingredients are unknown. No control results are available. Furthermore, it is unclear whether the reported endpoints refer to the active substance or to the product. No analytical verification of test concentrations were performed. The study is considered unreliable.
503	Paradelo M. et al.	CA 7.1.3.1.1	2015	Prediction of the glyphosate sorption coefficient across two loamy agricultural fields	Geoderma (2015), Vol. 259-260, pp. 224	5.4.1 case b) Relevant but supplementary information: Study of 9 soil factors influencing glyphosate sorption in 2 different fields. Not related to an efate guideline, but supplementary information.
504	Pareja L. et al.	CA 6.10.1	2019	Evaluation of glyphosate and AMPA in honey by water extraction followed by ion chromatography mass spectrometry. A pilot monitoring study	Analytical methods (2019), Vol. 11, No. 16, pp. 2123	5.4.1 case b) Relevant but supplementary information: This is primarily an analytical method paper, but does include information on analysis of collected samples.
505	Park J-S. et al.	CA 5.9	2013	Incidence, etiology, and outcomes of rhabdomyolysis in a single terfiary referral center	Journal of Korean Medical Science (2013), Vol. 28, No. 8, pp. 1194	5.4.1 case b) Relevant but supplementary information: This article only mentions glyphosate in the reference section. One reference specifically discusses rhabdomyolysis with intramuscular injection of formulated glyphosate.
506	Park S. et al.	CA 5.9.5	2016	Concurrent Hemoperfusion and Hemodialysis in Patients with Acute Pesticide Intoxication.	Blood Purification (2016), Vol. 42, No. 4, pp. 329	5.4.1 case b) Relevant but supplementary information: This article describes the use of hemodialysis and hemoperfusion in pesticide overdoses. Out of 383 pesticide ingestions 110 were glyphosate formulations. Of the 80 deaths reported 12 of them were glyphosate. This article is describing a possibly beneficial modality of treating severe pesticide overdose and should not impact re-registration.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
507	Parks C. G. et al.	CA 5.9.4	2016	Rheumatoid Arthritis in Agricultural Health Study Spouses: Associations with Pesticides and Other Farm Exposures.	Environmental health perspectives (2016), Vol. 124, No. 11, pp. 1728	5.4.1 case b) Relevant but supplementary information: Lack of information about glyphosate frequency of use and timing of use. This publication is considered unreliable.
508	Parvez S. et al.	CA 5.9.4	2018	Glyphosate exposure in pregnancy and shortened gestational length: a prospective Indiana birth cohort study	Environmental Health (2018), Vol. 17, pp. 23/1	5.4.1 case b) Relevant but supplementary information: Small study. Uncertain exposure characterization. Premature births were 1 of 5 for those with glyphosate < LOD and 1 of 66 for those with glyphosate > LOD. This suggests no evidence of glyphosate being related to preterm birth. This publication is considered unreliable.
509	Pasini R. A. et al.	CA 8.3	2018	Comparative selectivity of herbicides used in wheat crop on the predators Chrysoperla externa and Eriopis connexa	Planta Daninha (2018), Vol. 36,pp. E018179968	5.4.1 case b) Relevant but supplementary information: In the material and methods section important information is missing. The test items were not adequately specified regarding the content of the active ingredient. It is unclear whether the given active ingredient concentration in the spray solution corresponds to the content of the active ingredient in the formulation. The test did not follow a specific test guideline, although the culturing of the insects was conducted according to recognised approaches. There were no validity criteria established and the performance of the assays was not assessed using a positive control substance. An endpoint that could be used in an ecotoxicology risk assessment was not established.
510	Paudel P. et al.	CA 7.2.1	2015	Birnessite-Catalyzed Degradation of Glyphosate: A Mechanistic Study Aided by Kinetics Batch Studies and NMR Spectroscopy.	Soil Science Society of America Journal (2015), Vol. 79, No. 3, pp. 815	5.4.1 case b) Relevant but supplementary information: No relevant information on environmental fate included but a new abiotic (birnessite) degradation of glyphosate is discussed.
511	Pereira P. C. et al.	CA 8.2.7	2019	Acute Toxicity of Herbicides and Sensibility of Aquatic Plant Wolffia brasiliensis as a Bioindicator Organism	Planta Daninha (2019), Vol. 37, pp. e019201636	5.4.1 case b) Relevant but supplementary information: This paper describes a non-standard aquatic plant ecotoxicity test for a non-EU native species, and is therefore difficult to relate to an EU level ecotox risk assessment. The formulation used is specific to aquatic applications that are not on the proposed GAP for the renewal.
512	Perry M. J. et al.	CA 5.9.4	2019	Historical evidence of glyphosate exposure from a US agricultural cohort	Environmental Health (2019), Vol. 18, No. 1, pp. 42	5.4.1 case b) Relevant but supplementary information: The study population, the sampling and the method of analysis along with its validation are not sufficiently documented. This publication is considered unreliable.
513	Petersen C. T. et al.	CA 7.1.4.3, CA 7.5	2011	Comments on "Transport modes and pathways of the strongly sorbing pesticides glyphosate and pendimethalin through structured drained soils".	Chemosphere (2011), Vol. 85, No. 9, pp. 1538	5.4.1 case b) Relevant but supplementary information: Letter to the Editor, comment on Kjaer et al_2011, Chemosphere (2011), Vol. 84, No. 4, pp. 471-479.
514	Picetti E. et al.	CA 5.9.5	2017	Glyphosate ingestion causing multiple organ failure: A near-fatal case report.	Acta Biomedica (2017), Vol. 88, No. 4, pp. 533	5.4.1 case b) Relevant but supplementary information: This is a report about multi-organ failure after suicidal ingestion of formulated glyphosate and should not impact re-registration.
515	Pinto C. L. et al.	CA 5.8.3	2018	Identification of candidate reference chemicals for in vitro steroidogenesis assays	Toxicology In Vitro (2018), Vol. 47, pp. 103	5.4.1 case b) Relevant but supplementary information: review, secondary source.

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516	Piotrowicz-Cieslak A. I. et al.	CA 8.6	2010	Different Glyphosate Phytotoxicity of Seeds and Seedlings of Selected Plant Species.	Polish Journal of Environmental Studies (2010), Vol. 19, No. 1, pp. 123	5.4.1 case b) Relevant but supplementary information: Study to compare the effect of glyphosate on plant growth parameters of 6 plant species.
517	Planche V. et al.	CA 5.9.5	2019	Acute toxic limbic encephalopathy following glyphosate intoxication.	Neurology (2019), Vol. 92, No. 11, pp. 534	5.4.1 case b) Relevant but supplementary information: This article discusses the neurologic sequelae of glyphosate ingestion. Glyphosate cannot cross the blood brain barrier. It is not neurotoxic.
518	Plewis I.	CA 5.6.1	2019	Comment on: Perinatal exposure to a glyphosate-based herbicide impairs female reproductive outcomes and induces second-generation adverse effects in Wistar rats.	Archives of toxicology (2019), Vol. 93, No. 1, pp. 207	5.4.1 case b) Relevant but supplementary information: Glyphosate based herbicide (54% glyphosate acid equivalents as the K salt) dosed to pregnant rats.
519	Plewis I.	CA 5.6.1	2020	Comment on response from Milesi et al. to 'Perinatal exposure to a glyphosate-based herbicide impairs female reproductive outcomes and induces second-generation adverse effects in Wistar rats'.	Archives of toxicology (2020), Vol. 94, pp. 351	5.4.1 case b) Relevant but supplementary information: Glyphosate based herbicide (54% glyphosate acid equivalents as the K salt) dosed to pregnant rats.
520	Pochron S. et al.	CA 8.4.1	2020	Glyphosate but not Roundup® harms earthworms (Eisenia fetida).	Chemosphere (2020), Vol. 241, pp. 125017	5.4.1 case b) Relevant but supplementary information: The study was not conducted to GLP. The test design does not correspond to a current test guideline for earthworms focusing on reproduction parameters and there is no endpoint for risk assessment. Only a single dose level was used in the test, which is equivalent to 19.7 kg/ha; substantially higher than the maximum proposed application rate of glyphosate for the renewal. There was no analytical confirmation of levels tested, so exposure cannot be confirmed.
521	Portier C. J. et al.	CA 5.5	2017	Re: Tarazona et al. (2017): Glyphosate toxicity and carcinogenicity: a review of the scientific basis of the European Union assessment and its differences with IARC.	Archives of toxicology (2017), Vol. 91, No. 9, pp. 3195	5.4.1 case b) Relevant but supplementary information: Letter to the Editor, ref to Tarazona et al._2017, Archives of toxicology (2017), Vol. 91, No. 8, pp. 2723-2743.
522	Poulsen M. E. et al.	CA 6.9	2017	Results from the Danish monitoring programme for pesticide residues from the period 2004-2011	Food Control (2017), Vol. 74, pp. 25	5.4.1 case b) Relevant but supplementary information: Summary of EU monitoring data.
523	Prevot-D'Alvise N. et al.	CA 8.2.1	2013	Acute toxicity of a commercial glyphosate formulation on European sea bass juveniles (Dicentrarchus labrax L.): gene expressions of heme oxygenase-1 (ho-1), acetylcholinesterase (AChE) and aromatases (cyp19a and cyp19b).	Cellular and molecular biology (2013), Vol. 59 Suppl, pp. OL1906	5.4.1 case b) Relevant but supplementary information: Test item was appropriately identified as being linked to the representative formulation. Test design does not however follow a recognised approach, uneven sample sizes and large fish were exposed. The rationale behind test concentration selection was not clear and dose preparation was unclear as exposure rates could not be confirmed. Effects of acetone on fish were not discussed. Endpoints anyway demonstrate low toxicity compared to existing list of endpoints.
524	Puertolas L. et al.	CA 8.2	2010	Evaluation of side-effects of glyphosate mediated control of giant reed (Arundo donax) on the structure and function of a nearby Mediterranean river ecosystem.	Environmental research (2010), Vol. 110, No. 6, pp. 556	5.4.1 case b) Relevant but supplementary information: The effect of the herbicide Herbolex (mixture of glyphosate isopropyl amine salts and surfactant compounds) on the structure and function of a nearby river ecosystem after application of glyphosate in the riparian vegetation was evaluated. Therefore, in situ bioassays with

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
						transplanted Daphnia magna, field collected caddis fly (Hydropsyche exocellata) and benthic macroinvertebrate structure and function were investigated. The structure of the benthic macroinvertebrate assemblages was assessed at the same time as well as two additional time-points before application (5 and two month before). Transplants with Daphnia magna were deployed at the day of application and 12 days afterwards, whereas Hydropsyche exocellata samples were collected at the day of application and 3 days afterwards. Concentration of glyphosate and the metabolite AMPA was analysed in the river water samples collected from the studied sites at the day of application and two, three and 12 days afterwards. But other chemicals were not analysed. The herbicide was applied at 2.1 kg glyphosate/ha in an area of 0.5 ha of riparian forest, but the exact place is not specified. Furthermore, no data on the weather conditions were collected which may have had an influence on the community structure. No exact biological data regarding the macroinvertebrate abundance is reported. However, as no results were reported in values reflecting agreed endpoints for the ecological risk assessment and the information is insufficient to transfer values in such endpoints, the study can be considered as supportive information only.
525	Puglis H. J. et al.	CA 8.1.4	2011	Effects of Technical-Grade Active Ingredient vs. Commercial Formulation of Seven Pesticides in the Presence or Absence of UV Radiation on Survival of Green Frog Tadpoles	Archives of Environmental Contamination and Toxicology (2011), Vol. 60, No. 1, pp. 145	5.4.1 case b) Relevant but supplementary information: Conducted in the US, compares glyphosate a.i. and glyphosate product (and others). Study looks at toxicity to green frog tadpoles (collected from local pond and kept in aged tap water) and impact of UV radiation to see if it enhances toxicity. Application up to 5 mg/L. Findings difficult to extrapolate to the regulatory risk assessment of glyphosate.
526	Qin J. et al.	CA 7.2.1.1	2017	Potential effects of rainwater-borne H2O2 on competitive degradation of herbicides and in the presence of humic acid.	Chemosphere (2017), Vol. 170, pp. 146	5.4.1 case b) Relevant but supplementary information: Provides information on degradation of glyphosate in the presence of hydrogen peroxide, Fe2+, and humic acid and the presence of another pesticide simulating conditions found in natural waters.
527	Quaglia G. et al.	CA 7.5	2019	A spatial approach to identify priority areas for pesticide pollution mitigation	JOURNAL OF ENVIRONMENTAL MANAGEMENT (2019), Vol. 246, pp. 5833	5.4.1 case b) Relevant but supplementary information: This paper describes a modeling approach to assess potential risk of glyphosate loads in waterbodies but does not utilize or report measured glyphosate concentrations. Provides supplemental information but not directly relevant for glyphosate EU risk assessment.
528	Rahman F. et al.	CA 8.9	2019	Evaluation of Glyphosate Levels in Sediments of Milky Stork Foraging Areas in Kuala Gula Bird Sanctuary, Perak, Malaysia.	Pertanika Journal of Tropical Agricultural Science (2019), Vol. 42, No. 3, pp. 995	5.4.1 case b) Relevant but supplementary information: Considered relevant but supplemental as this relates to biodiversity irrespective of not deriving from an EU country.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
529	Rahnama R. et al.	CA 8.2.1	2018	Acute toxicity of herbicides on the survival of adult shrimp, Artemia Franciscana	Iranian Journal of Toxicology (2018), Vol. 12, No. 6, pp. 45	5.4.1 case b) Relevant but supplementary information: Important information is missing in the material and methods section. The preparation and application of the test solutions was not reported. The test item is not adequately specified. The given purity of 41 % indicates that a product was tested. However, it is not clear whether the test concentrations refer to the product or to the active substance. In addition, the biological results of the test were not sufficiently stated. The endpoint data presented in the paper is difficult to understand. Table 3 in the article indicates a 48 hour LC50 of 17.483 mg/L, whilst in Figure 2, the 48 hour LC50 is 38.897 mg/L. Therefore, the reliability of the data presented in the article is questionable. In addition, it is unclear whether the animals were fed during the assay. Figure 3 appears to show artemia with egg bags and highlights the contents of the rudimentary artemia gut as being those exposed to herbicides. This observation is not supported by any information presented in the paper. No mortality data for the test concentrations nor for the controls is presented to evaluate the results. Assessment of the statistical power of the assay is not possible. Furthermore, there was no analytical verification of test concentrations reported, there is no guideline stated and it is non GLP. Multiple doses were tested, but a positive control group was not included, so the performance / robustness of the test system cannot be confirmed. The study is considered unreliable.
530	Raimets R. et al.	CA 6.10.1	2020	Pesticide residues in beehive matrices are dependent on collection time and matrix type but independent of proportion of foraged oilseed rape and agricultural land in foraging territory	Chemosphere (2020), Vol. 238, pp. 124555	5.4.1 case b) Relevant but supplementary information: The data are over-summarized. Only the percentage of samples with detectable / quantifiable residues, the median and the maximum residues are provided and it is not clear how many samples were analysed. Furthermore, it seems that the same data were already published (with more details) in a previous article (Karise R. et al., 2017). Therefore, the publication is considered to only provide supplementary information that is not directly relevant to MRL setting and risk assessment.
531	Rainio M. J. et al.	CA 8.3.2, CP 10.3.2	2019	Effects of a glyphosate-based herbicide on survival and oxidative status of a non-target herbivore, the Colorado potato beetle (Leptinotarsa decemlineata)	Comparative biochemistry and physiology. Toxicology & pharmacology (2019), Vol. 215, pp. 47	5.4.1 case b) Relevant but supplementary information: The material and methods section lacks some important information. Newly hatched larvae from field collected beetles were used, however information on previous exposure to other chemicals or field history was not documented. Information on replicates, loading per replicate and test conditions were not reported. The preparation of the test solution was not specified. The test approach used does not follow a recognised test guideline and the rationale for the route of exposure and the dosing volumes used, is not described. The author indicates that a 100% Roundup Bio exposure in nature is unlikely to occur and that the high concentration mainly tests the physiological limits of the system including the antioxidant enzyme capacity of the beetles

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						against the product. Exposure levels where significant effects were observed are unrealistic highlighting. There was no analytical verification, and the study was not performed according to GLP. Furthermore, endpoints based on biochemical analyses of larval homogenates cannot be applied in regulatory risk ecotoxicology assessment of non-target arthropods. Given the unrealistically high exposure levels used in the study, the non-guideline approach and the uncertainties as identified above, the study is considered as supplementary only.
532	Rampazzo N. et al.	CA 7.1.2.2.1	2013	Adsorption of glyphosate and aminomethylphosphonic acid in soils.	International Agrophysics (2013), Vol. 27, No. 2, pp. 203	5.4.1 case b) Relevant but supplementary information: The study investigates glyphosate and AMPA adsorption to 3 different soils. Iron-oxides appear to play an important role in adsorption of glyphosate and AMPA in these soils.
533	Ranganathaswamy M. et al.	CA 8.7	2012	Evaluation of toxicity of agrochemicals on Trichoderma isolates in vitro.	Journal of Biological Control (2012), Vol. 26, No. 4, pp. 391	5.4.1 case b) Relevant but supplementary information: The form of glyphosate used in the experiments cannot be confirmed. Fungal growth inhibition is not part of the specific ecotox risk assessment for the renewal.
534	Razi M. et al.	CA 5.8.2	2012	Histological and histochemical effects of Gly-phosate on testicular tissue and function.	Iranian Journal of Reproductive Medicine (2012), Vol. 10, No. 3, pp. 181	5.4.1 case b) Relevant but supplementary information: No internationally accepted methods were used, only one dose level was considered, there was no characterisation of the test compound and the results are not corroborated by regulatory reproductive toxicity studies using much higher dose levels and longer times of exposure. This publication is considered unreliable.
535	Rebai O. et al.	CA 5.3	2017	Morus alba leaf extract mediates neuroprotection against glyphosate-induced toxicity and biochemical alterations in the brain.	Environmental science and pollution research international (2017), Vol. 24, No. 10, pp. 9605	5.4.1 case b) Relevant but supplementary information: Formulation administered via i.p. injection (described as a commercial formulation registered in the Tunisian Ministry of Agriculture).
536	Reding M.-A.	CA 7.5	2012	Letter to the editor regarding "Determination of glyphosate in groundwater samples using an ultrasensitive immunoassay and confirmation by on-line solid phase extraction followed by liquid chromatography coupled to tandem mass spectrometry".	Analytical and bioanalytical chemistry (2012), Vol. 404, No. 2, pp. 613	5.4.1 case b) Relevant but supplementary information: Letter to the Editor, comments on Sanchis et al_2011, Analytical and bioanalytical chemistry (2012), Vol. 402, No. 7, pp. 2335-45.
537	Ren X. et al.	CA 5.8.2	2018	Effects of glyphosate on the ovarian function of pregnant mice, the secretion of hormones and the sex ratio of their fetuses.	Environmental pollution (2018), Vol. 243, No. Pt B, pp. 833	5.4.1 case b) Relevant but supplementary information: Glyphosate purity not reported. Only one dose level for glyphosate was tested (0.5% solution added to drinking water (it is unclear what actual dose was administered per day)). The number of animals used per dose level was too low. Insufficient information is given on the biochemical methods used. This publication is considered unreliable.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
538	Rendon-von Osten J. et al.	CA 5.9.2	2017	Glyphosate Residues in Groundwater, Drinking Water and Urine of Subsistence Farmers from Intensive Agriculture Localities: A Survey in Hopelchen, Campeche, Mexico.	International journal of environmental research and public health (2017), Vol. 14, No. 6, pp. E595	5.4.1 case b) Relevant but supplementary information: No new information without clear relevance for the risk assessment.
539	Reno U. et al.	CA 8.2.4	2016	EFECTOS SUBLETALES DE CUATRO FORMULACIONES DE GLIFOSATO SOBRE Daphnia magna Y Ceriodaphnia dubia (CRUST ACEA, CLADOCERA)	Natura Neotropicalis (2016), Vol. 47, No. 1, pp. 7	5.4.1 case b) Relevant but supplementary information: The aim of the study was to compare the chronic toxicity of four different commercially available glyphosate products to Daphnia magna and Ceriodaphnia dubia. The study was not conducted according to GLP and the study design lacks some details compared with relevant guidelines. The test concentrations are based on nominal and no analytical verification of test item concentrations were conducted (only analysis of stock solutions using an unspecific detector). Although the details of the statistical analyses are reported, the study report only describes where significant differences were found. No detailed results including standard deviations of the investigated parameters are provided. As the study is based on different glyphosate products, the toxicity of glyphosate active substance alone is unknown and therefore endpoints generated from this study are not quantifiable and deliver only supplementary information.
540	Resnik D. B.	CA 5.5	2015	Retracting Inconclusive Research: Lessons from the Seralini GM Maize Feeding Study	Journal of agricultural & environmental ethics (2015), Vol. 28, No. 4, pp. 621	5.4.1 case b) Relevant but supplementary information: Letter to the Editor, Comment on Seralini et al._2012_Food Chemical Toxicol (2012), retracted
541	Richards B. K. et al.	CA 7.1.4	2018	Antecedent and Post-Application Rain Events Trigger Glyphosate Transport from Runoff-Prone Soils	Environmental science & technology letters (2018), Vol. 5, No. 5, pp. 249	5.4.1 case b) Relevant but supplementary information: Run-off study in New York State, USA. The proposed soil hydrologic condition in 7 days pre-spraying is important in determining degree of runoff. Conclusion from study of interest even though data not appropriate for EU risk assessment.
542	Roberts D. M. et al.	CA 5.9	2010	A prospective observational study of the clinical toxicology of glyphosate-containing herbicides in adults with acute self-poisoning.	Clinical toxicology (2010), Vol. 48, No. 2, pp. 129	5.4.1 case b) Relevant but supplementary information: This paper is a prospective study of outcomes of suicidal ingestions of glyphosate based herbicides. It shows that the mortality rate from overdose is 3.2%. This paper supports the idea that low-toxicity pesticides have a lower mortality rate than higher toxicity products.
543	Rodrigues H. G. et al.	CA 5.4	2011	Effects of roundup pesticide on the stability of human erythrocyte membranes and micronuclei frequency in bone marrow cells of Swiss mice	Open Biology Journal (2011), Vol. 4, pp. 54	5.4.1 case b) Relevant but supplementary information: Substance identification is missing, the study is lacking statistically and moreover, a mixed study design has been presented where the micronuclei frequency had been investigated in mice after i.p. injection.
544	Rose M. T. et al.	CA 8.4.2	2018	Minor effects of herbicides on microbial activity in agricultural soils are detected by N-transformation but not enzyme activity assays	European journal of soil biology (2018), Vol. 87, pp. 72	5.4.1 case b) Relevant but supplementary information: Non-EU soil but relevant endpoints demonstarting a lack of effects on soil microbial populations (n-trans) at field application rates.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
545	Rother H.	CA 5.9.5	2012	Improving poisoning diagnosis and surveillance of street pesticides	SAMJ (2012), Vol. 102, No. 6, Special Iss., pp. 485	5.4.1 case b) Relevant but supplementary information: No new information included.
546	Ruamthum W. et al.	CA 8.1.4	2011	Effect of glyphosate-based herbicide on acetylcholinesterase activity in tadpoles, Hoplobatrachus rugulosus.	Communications in agricultural and applied biological sciences (2011), Vol. 76, No. 4, pp. 923	5.4.1 case b) Relevant but supplementary information: Conducted in Thailand. Study to look at effect of glyphosate on enzyme activity in tadpoles (east asian bullfrog). 96 hr exposure. LC50 values generated.
547	Ruiz-Gonzalez E. L. et al.	CA 8.2.4	2018	Assessment of median lethal concentration (CL50) of pollutants on Macrobrachium tenellum juveniles	Latin American Journal of Aquatic Research (2018), Vol. 46, No. 3, pp. 589	5.4.1 case b) Relevant but supplementary information: Considered supplementary as the test substance cannot be explicitly identified. Information presented suggests that this is not the representative formulation for the renewal as it is based on the potassium salt of glyphosate.
548	Rzymski P. et al.	CA 8.2.7	2013	The effect of glyphosate-based herbicide on aquatic organisms - a case study.	Limnological Review (2013), Vol. 13, No. 4, pp. 215	5.4.1 case b) Relevant but supplementary information: Information may be relevant to the wider discussion on trophic interactions, but cannot be related to the EU level ecotox risk assessment for the renewal.
549	Sadeghi A. et al.	CA 8.2.1	2014	Investigation of LC50, NOEC and LOEC of glyphosate, deltamethrin and pretilachlor in guppies (Poecilia reticulata)	Iranian Journal of Toxicology (2014), Vol. 8, No. 26, pp. 1124	5.4.1 case b) Relevant but supplementary information: Study was considered to be conducted according to a recognised guideline via the cited reference in the paper, but the test system specifics cannot be confirmed. For example, there are validity criteria stated but water qualities / environmental conditions are not presented, so the suitability of the test system cannot be confirmed. Additionally, there was no analytical verification of the exposure concentrations, so exposure cannot be confirmed. The source and age / size of the fish are not presented in the paper, so the appropriateness of the test system cannot be confirmed. Additionally, the size of the aquariums used is stated (120 L) but the volume of test or control medium in these vessels is not stated, therefore fish loading rates cannot be determined. The test substance is identified as a 'commercial 41% glyphosate' – no other information are presented so effects cannot clearly be related to the active substance glyphosate, and the relevance of the test item used to the EU renewal of MON 52276 cannot be confirmed. The study is considered unreliable.
550	Sagliker H. A.	CA 7.1.2.1.1	2018	Carbon mineralisation in orange grove soils treated with different doses of glyphosate-amine salt	Journal of Environmental Protection and Ecology (2018), Vol. 19, No. 3, pp. 1102	5.4.1 case b) Relevant but supplementary information: Study demonstrates that glyphosate application at up to 4x recommended rates does not decrease carbon mineralisation in soil and in some cases increases carbon mineralisation. Data is supplementary of previously reported work.
551	Sakpa C. L. et al.	CA 5.6	2018	Effects of glyphosate on sperm parameters and pregnancy success rate in Wistar rats.	Annals of Biomedical Sciences (2018), Vol. 17, No. 2, pp. 156	5.4.1 case b) Relevant but supplementary information: The glyphosate used is not sufficiently characterized, only two dose levels were tested and the number of animals used per dose level was too low. This publication is considered unreliable.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
552	Salgado T. P. et al.	CA 8.6.2	2011	Initial symptoms of Eucalyptus intoxication by glyphosate rates applied on the stem or leaves. Sintomas da intoxicacao inicial de Eucalyptus proporcionados por subdoses de glyphosate aplicadas no caule ou nas folhas.	Planta Daninha (2011), Vol. 29, No. 4, pp. 913	5.4.1 case b) Relevant but supplementary information: Effects on eucalyptus seedlings after application of glyphosate (Roundup Original, 360 g a.e./L). Spraying the aerial part of the plants (trials 3 and 4). Plant BBCH stage unclear (hight at start of application: 40/ 69 cm). No biological results for control or any test concentration reported in tables. Therefore the results cannot be reproduced. No results in values which can be used for the risk assessment.
553	Saltmiras D. A. et al.	CA 5.8	2015	Glyphosate: The Fate and Toxicology of a Herbicidal Amino Acid Derivative.	Amino Acids in Higher Plants (2015), pp. 461	5.4.1 case b) Relevant but supplementary information: Overview of glyphosate toxicology and fate data.
554	Samal S. et al.	CA 8.5	2019	Evaluating the effect of monocrotophos and glyphosate on microbial population and certain important exoenzyme activities in soil.	Journal of Environmental Biology (2019), Vol. 40, No. 2, pp. 226	5.4.1 case b) Relevant but supplementary information: Dosing information / purity of both active substances cannot be confirmed. Study not conducted according to a recognised guideline. Presented endpoints not relateable to an EU level risk assessment based on lack of soil characterisation.
555	Santadino M. et al.	CA 8.4.1	2014	Glyphosate Sublethal Effects on the Population Dynamics of the Earthworm Eisenia fetida (Savigny, 1826)	Water, air, and soil pollution (2014), Vol. 225, No. 12, pp. 2207	5.4.1 case b) Relevant but supplementary information: The chronic laboratory study with E. fetida was not performed according to a recommended guideline and thus, no validity criteria were given. Insufficient information is provided on the experimental design, as no information on the soil characteristics and the application of the test item is given. Only two test item treatment rates, without giving any rationale for choosing the higher dose, and a negative control were tested, but no positive control. No information on underlying raw data is given, i.e. number of control mortality, number of juveniles and cocoons etc. Finally, there are no quantifiable endpoints presented in the paper, considered applicable to an EU level ecotoxicological risk assessment for renewal purposes.
556	Santos M. J. G. et al.	CA 8.4, CP 10.4.2.2	2012	Pesticide application to agricultural fields: effects on the reproduction and avoidance behaviour of Folsomia candida and Eisenia andrei.	Ecotoxicology (2012), Vol. 21, No. 8, pp. 2113	5.4.1 case b) Relevant but supplementary information: The study is well described and performed according to ISO guidelines. Validity criteria were met, where relevant. Glyphosate did not seem to affect either earthworms or collembolans at the recommended field dose; therefore there were no endpoints presented in the paper, thus the study is considered supplementary only.
557	Santos R. et al.	CA 5.9.4	2019	Thyroid and reproductive hormones in relation to pesticide use in an agricultural population in Southern Brazil	Environmental Research (2019), Vol. 173, pp. 221	5.4.1 case b) Relevant but supplementary information: Insufficient information is provided on the biochemical methods used. No detailed description of the analytical methods for the measurement of hormones in serum (using a kit from Roche). This publication is considered unreliable.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
558	Saska P. et al.	CA 8.2.1	2017	Treating Prey With Glyphosate Does Not Alter the Demographic Parameters and Predation of the Harmonia axyridis (Coleoptera: Coccinellidae).	Journal of economic entomology (2017), Vol. 110, No. 2, pp. 392	5.4.1 case b) Relevant but supplementary information: Exposure was performed via treated prey, which does not correspond to an adequate route of exposure regarding current test guideline for non-target-arthropods. 2 mL test solution was applied to 50 aphids placed on a filter paper in a petri dish, (dimension unknown). There is no analytical verification, and the study does not conform to guidelines nor GLP. The study is well documented, but no endpoints could be derived which can be applied for the risk assessment. Therefore, the study is considered as supplementary only.
559	Saska P. et al.	CA 8.3	2016	Treatment by glyphosate-based herbicide alters life history parameters of the rose-grain aphid Metopolophium dirhodum.	Scientific reports (2016), Vol. 6, pp. 27801	5.4.1 case b) Relevant but supplementary information: The paper does not present endpoints that could be used in an EU level ecotox risk assessment.
560	Sato C. et al.	CA 5.9	2011	Aseptic meningitis in association with glyphosate-surfactant herbicide poisoning.	Clinical toxicology (2011), Vol. 49, No. 2, pp. 118	5.4.1 case b) Relevant but supplementary information: This article evaluates the case of a woman who presented in multi-organ failure 2 days after a formulated glyphosate overdose. Meningitis was suspected and the patient was found to have a high level of glyphosate in CSF. The claim is that glyphosate can cause aseptic meningitis and neurotoxicity. Glyphosate is hydrophilic and cannot cross cell membranes without active transport. It is well known that hypoxia and inflammatory changes can disrupt the tight junctions of the blood brain barrier which may allow passage of substances into the CSF. IL-6 is a known marker of inflammation. This is perhaps the mechanism through which they were able to measure glyphosate in the CSF. Since this paper is about a suicidal ingestion it should have no impact on re-registration.
561	Schinasi L. et al.	CA 5.5	2014	Non-Hodgkin lymphoma and occupational exposure to agricultural pesticide chemical groups and active ingredients: a systematic review and meta-analysis.	International journal of environmental research and public health (2014), Vol. 11, No. 4, pp. 4449	5.4.1 case b) Relevant but supplementary information: This paper concerns a meta-analysis where the results were taken from available studies at face value. The authors had no way to correct for recall bias, confounding, etc. As the meta-RRs of the studies included are in error the meta-analyses are also in error. The study is considered unreliable.
562	Schwan-Stoffel A. V. et al.	CA 8.6	2012	The effect of herbicides on the germination of urediniospores of Phakopsora Pachyrhizi SYD. & P. SYD. Original Title: Germinacao de Phakopsora Pachyrhizi SID. & P. SID. Sob diferentes herbicidas.	Arquivos do Instituto Biologico Sao Paulo (2012), Vol. 79, No. 3, pp. 381	5.4.1 case b) Relevant but supplementary information: Study describes the impacts of glyphosate on germination of plant pathogen spores.
563	Seok S-J. et al.	CA 5.9	2011	Surfactant volume is an essential element in human toxicity in acute glyphosate herbicide intoxication.	Clinical toxicology (2011), Vol. 49, No. 10, pp. 892	5.4.1 case b) Relevant but supplementary information: Results indicate that treatment of patients with acute glyphosate herbicide intoxication should take into account the volume and not the type of surfactants in herbicide formulations.
564	Seralini G-E. et al.	CA 5.5	2013	Answers to critics: Why there is a long term toxicity due to a Roundup-tolerant genetically modified maize and to a Roundup herbicide	Food and Chemical Toxicology (2013), Vol. 53, pp. 476	5.4.1 case b) Relevant but supplementary information: Author responding to multiple Letters to the Editor.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
565	Shaw G. M. et al.	CA 5.9	2014	Early pregnancy agricultural pesticide exposures and risk of gastroschisis among offspring in the San Joaquin Valley of California	Birth Defects Research, Part A: Clinical and Molecular Teratology (2014), Vol. 100, No. 9, pp. 686	5.4.1 case b) Relevant but supplementary information: No new information without clear relevance for the risk assessment.
566	Shaw W.	CA 5.9	2017	Elevated Urinary Glyphosate and Clostridia Metabolites With Altered Dopamine Metabolism in Triplets With Autistic Spectrum Disorder or Suspected Seizure Disorder: A Case Study.	Integrative medicine (2017), Vol. 16, No. 1, pp. 50	5.4.1 case b) Relevant but supplementary information: This is a limited case study of 3 individuals, with minimal data on glyphosate exposure.
567	Shiogiri N. S. et al.	CA 8.2	2010	Ecotoxicity of glyphosate and aterbane (R) br surfactant on guaru (Phalloceros caudimaculatus).	Acta Scientiarum Biological Sciences (2010), Vol. 32, No. 3, pp. 285	5.4.1 case b) Relevant but supplementary information: Conducted in Brazil, looking at comparison of toxicity of glyphosate products with different amounts of surfactant to different fish species and impact on electrical conductivity, dissolved oxygen and pH.
568	Shrestha S. et al.	CA 5.9.2	2018	Incident thyroid disease in female spouses of private pesticide applicators.	Environment International (2018), Vol. 118, pp. 282	5.4.1 case b) Relevant but supplementary information: Very superficial information about exposure to specific pesticides. Limitations in assessment of potential confounding factors. Limitations in exposure and outcome information. This publication is considered unreliable.
569	Shrestha S. et al.	CA 5.9.4	2018	Pesticide use and incident hypothyroidism in pesticide applicators in the agricultural health study	Environmental Health Perspectives (2018), Vol. 126, No. 9, pp. 11	5.4.1 case b) Relevant but supplementary information: Self-reported outcomes, lack of biological predicate for many pesticides (including glyphosate), and failure to control for confounding by other pesticides for glyphosate and for other pesticides. This publication is considered unreliable.
570	Siddhapara M. R. et al.	CP 10.3.2	2012	Toxicity of some commonly used insecticides/herbicides on Zygogramma bicolorata Pallister (Coleoptera: Chrysomelidae).	Journal of Biological Control (2012), Vol. 26, No. 3, pp. 251	5.4.1 case b) Relevant but supplementary information: The source of the beetles used was not adequately described. The source and purity of the glyphosate test substance was not described, preventing confirmation ofthe exposure concentrations used in the test. There was insufficient description of the test system to enable comparison with existing test guidelines to establish acceptability of the approach used. Analytical verification of the exposure concentrations was not performed. No endpoint can be derived from the study. The sudy is considered as supplementary only.
571	Sihtmaee M. et al.	CA 8.2.4.1, CA 8.6, CA 8.7	2013	Ecotoxicological effects of different glyphosate formulations	Applied soil ecology (2013), Vol. 72, pp. 215	5.4.1 case b) Relevant but supplementary information: The study design and overall conduct were well described. The D. magna toxicity test was performed according to OECD guideline 202 but validity criteria were not mentioned. Analytical verification of the test materials and exposure concentrations within the study was also lacking. Overall, the study is considered to be of limited relevance to the EU annex renewal of glyphosate as the D. magna toxicity test was only a small part of the study, and the soil portion of the study was conducted using exaggerated soil concentrations (up to 1000 times relevant levels). For these reasons, the study is considered supplemental only.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
572	Silva V. et al.	CA 7.5	2019	Pesticide residues in European agricultural soils - A hidden reality unfolded	Science of the total environment (2019), Vol. 653, pp. 1532	5.4.1 case b) Relevant but supplementary information: Analysis for glyphosate & AMPA and other pesticides in 317 soil samples from 11 EU countries. Provides inidcation of residues but no use history.
573	Singh B. et al.	CA 7.1.3.1.1	2014	Soil characteristics and herbicide sorption coefficients in 140 soil profiles of two irregular undulating to hummocky terrains of western Canada	Geoderma (2014), Vol. 232-234, pp. 107	5.4.1 case b) Relevant but supplementary information: Soil adsoption data for glyphosate are reported but they are well within the numbers reported in the dossier.
574	Skeff W. et al.	CA 7.5	2015	Glyphosate and AMPA in the estuaries of the Baltic Sea method optimization and field study.	Marine pollution bulletin (2015), Vol. 100, No. 1, pp. 577	5.4.1 case b) Relevant but supplementary information: Provides optimized analytical method and surface water monitoring results for 10 estuaries along the Baltic Sea in Germany.
575	Skretteberg L. G. et al.	CA 6.9	2015	Pesticide residues in food of plant origin from Southeast Asia - A Nordic project	Food Control (2015), Vol. 51, pp. 225	5.4.1 case b) Relevant but supplementary information: Monitoring data that may be relevant to the actual exposure of EU consumers to glyphosate residues. But non EU data, therefore, not directly linked to the representative uses.
576	Slager R. E. et al.	CA 5.9.4	2010	Rhinitis associated with pesticide use among private pesticide applicators in the agricultural health study	Journal of Toxicology and Environmental Health - Part A: Current Issues (2010), Vol. 73, No. 20, pp. 1382	5.4.1 case b) Relevant but supplementary information: No information on the formulations, farming practice in the given time period has been provided.
577	Slomberg D. L. et al.	CA 7.5	2017	Insights into natural organic matter and pesticide characterisation and distribution in the Rhone River.	Environmental Chemistry (2017), Vol. 14, No. 1, pp. 64	5.4.1 case b) Relevant but supplementary information: Supplementary information on glyphosate detection in surface water.
578	Smpokou E. et al.	CA 5.9.4	2019	Environmental exposures in young adults with declining kidney function in a population at risk of Mesoamerican nephropathy.	Occupational and environmental medicine (2019), Vol. 76, No. 12, pp. 920	5.4.1 case b) Relevant but supplementary information: Too little glyphosate exposure for an informative study. Many confounding exposures. Although this was described as a case control study, the authors did not calculate odds ratios. Evaluation of mean values is not a causal parameter in a case control study. This publication is considered unreliable.
579	Solomon K. R.	CA 5.5	2017	What is the problem with glyphosate?	Outlooks on Pest Management (2017), Vol. 28, No. 4, pp. 173	5.4.1 case b) Relevant but supplementary information: Review of IARC deficiencies.
580	Solomon K. R.	CA 5.9.2	2016	Glyphosate in the general population and in applicators: a critical review of studies on exposures.	Critical reviews in toxicology (2016), Vol. 46, No. sup1, pp. 21	5.4.1 case b) Relevant but supplementary information: review, secondary source.
581	Solomon K.R.	CA 5.5	2018	Corrigendum to: Glyphosate in the general population and in applicators: a critical review of studies on exposures.	Critical Reviews in Toxicology (2018), Vol 48, No 10, pp. 896	5.4.1 case b) Relevant but supplementary information: Corrigendum to Solomon et al._2016, Critical Reviews in Toxicology (2016), 46, sup1, pp. 21-27.
582	Song H.	CA 8.2	2010	Toxic action of acetamiprid, glyphosate and their combined pollution on Hydra magnipapillata	Anhui Nongye Kexue (2010), Vol. 38, No. 20, pp. 10811	5.4.1 case b) Relevant but supplementary information: Test species (freshwater polyp) collected from a rural pond in China. It is not clear what previous exposure the test species may have had to pesticides. It is not clear if the glyphosate is technical grade or product; the concentrations are from 0.14 to 36 mg/L.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
583	Song H. et al.	CA 8.2	2010	The Single and Binary-Combined Acute Toxicities of Five Common Pesticides on Hydra Magnipapillata	Journal of Anhui Normal University (Natural Science) (2010), Vol. 33, no. 2, pp. 159	5.4.1 case b) Relevant but supplementary information: Test species (freshwater polyp) collected from rural pond in China, it is not clear what exposure the test species may have had to pesticides or other chemicals previously. It is not clear if the glyphosate is technical material or product; the concentrations are from 40 to 227 mg/L.
584	Song H-Y. et al.	CA 5.8	2012	In vitro cytotoxic effect of glyphosate mixture containing surfactants.	Journal of Korean medical science (2012), Vol. 27, No. 7, pp. 711	5.4.1 case b) Relevant but supplementary information: In vitro mixture effects only, not glyphosate alone.
585	Sorahan T.	CA 5.5	2016	Visualising and thinking and interpreting. Response to the Burstyn and de Ros comments on Sorahan "Multiple myeloma and glyphosate use: A re-analysis of us agricultural health study (AHS) data".	International Journal of Environmental Research and Public Health (2016), Vol. 14, No. 1, pp. E6	5.4.1 case b) Relevant but supplementary information: Letter to the Editor, Response to Burstyn et al. on Sorahan et al._2015, Int. J. Environ. Res. Public Health (2015), Vol. 12, pp. 1548-1559.
586	Sribanditmongkol P. et al.	CA 5.9.5	2012	Pathological and toxicological findings in glyphosate-surfactant herbicide fatality: a case report.	The American journal of forensic medicine and pathology (2012), Vol. 33, No. 3, pp. 234	5.4.1 case b) Relevant but supplementary information: Description of a case of poisoning / suicidal ingestions of formulated glyphosate cause caustic injury, it is not unusual to find ulceration and haemorrhage of the GI tract in lethal ingestions.
587	Sritana N. et al.	CA 5.8.3	2018	Glyphosate induces growth of estrogen receptor alpha positive cholangiocarcinoma cells via non-genomic estrogen receptor/ERK1/2 signaling pathway.	Food and chemical toxicology (2018), Vol. 118, pp. 595	5.4.1 case b) Relevant but supplementary information: The results showed that glyphosate has the same potency as Estradiol (E2) when tested at extremely low concentrations.This has not been corroborated by other ED studies. This publication is considered unreliable.
588	Staufer P. et al.	CA 7.5	2012	Diffuse inflow from settlements	Aqua & Gas (2012), Vol. 92, No. 11, pp. 42	5.4.1 case b) Relevant but supplementary information: Describes modeling to predict contamination of 4 chemicals (one of which is glyphosate) in rainfall runoff and stormwater overflow discharge from WWTP outflow. Evaluates results at both the local and the Rhein River scale.
589	Stecca C. S. et al.	CA 8.3	2016	Side-Effects of Glyphosate to the Parasitoid Telenomus remus Nixon (Hymenoptera: Platygastridae).	Neotropical entomology (2016), Vol. 45, No. 2, pp. 192	5.4.1 case b) Relevant but supplementary information: The study was conducted in accordance with the protocols proposed by IOBC. Exposure via overspray on egg-cards and parasitoid pupae does not correspond to an adequate route of exposure according to current guidelines for testing non-target arthopods. The test design for the bioassay where adults are exposed to dry residues moderately described. The mortality of parasitoids during exposure is unclear, however, the spray deposit is given. The assessment of the biological endpoints in not precisely reported; day of emergence of parasitoids is not given. As the biological data do not report results in values useful for the risk assessment, there is no analytical verification, and the study is non GLP, the study can be considered as supplementary only.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
590	Stellin F. et al.	CA 8.4.1	2017	Effects of different concentrations of glyphosate (Roundup 360A®) on earthworms (Octodrilus complanatus, Lumbricus terrestris and Aporrectodea caliginosa) in vineyards in the North-East of Italy	Applied soil ecology (2018), Vol. 123, pp 802	5.4.1 case b) Relevant but supplementary information: The study has not been conducted according to a recognized test guideline and there are no validity criteria presented. There is no information on the choice of test duration and the experimental design is not sufficiently described. A formulation was tested, but no information is given on the set-up of the spray solution, how application was carried out and at which volume. For the soil sampling, the time point of sampling is not stated and no information on storage conditions of the soil prior to use in the study is given. Additionally, information on the soil depth in the experimental test containers is not mentioned. Similarly no information on food and environmental conditions during the exposure period (e.g. temperature, soil moisture, light conditions) are available. Finally, there are no quantifiable endpoints presented in the paper.
591	Stephenson C. L. et al.	CA 6.9	2016	An assessment of dietary exposure to glyphosate using refined deterministic and probabilistic methods.	Food and chemical toxicology (2016), Vol. 95, pp. 28	5.4.1 case b) Relevant but supplementary information: Refined dietary risk assessment.
592	Stipicevic S.	CA 5.5	2017	Some organophosphate insecticides and herbicides	Arhiv Za Higijenu Rada i Toksikologiju (2017), Vol. 68, No. 2, pp. A10	5.4.1 case b) Relevant but supplementary information: Commentary on IARC evaluation.
593	Suleman M. et al.	CA 7.1.4.1	2019	Laboratory simulation studies of leaching of the priority pesticides and their transformation products in soils	Journal of Animal and Plant Sciences (2019), Vol. 29, No. 4, pp. 1112	5.4.1 case b) Relevant but supplementary information: It does not follow the OECD Column Leaching Guideline (OECD 312). Rather than applying artificial rain continuously for 48 hrs as per guideline, an unspecified amount of artificial rain is applied at the end of the day to achieve 35-40 mL of leachate the following morning.
594	Sun Q. et al.	CA 8.5	2012	Effects of typical herbicides on soil respiration and N2O emissions from soil added with different nitrogen fertilizers.	Huan jing ke xue= Huanjing kexue (2012), Vol. 33, No. 6, pp. 1994	5.4.1 case b) Relevant but supplementary information: The study uses soil from fields in China, without describing the history of the fields (e.g. prior pesticide and fertilizer use), soil sampling, and soil storage conditions prior to the start of the experiment. Soil characteristics are unclear as no information on e.g. CEC and water holding capacity is available. The study was not conducted to a relevant guideline and thus no validity criteria are available. A negative control was included, but no information on replicates is available and only one test item concentration was tested. No positive control was tested. Application of the test item is not described well, the active substance content of the test item is not given and no verification of applied test amount was performed. Finally, there is no quantifiable endpoint presented.
595	Swartjes F. A. et al.	CA 7.5	2020	Measures to reduce pesticides leaching into groundwater-based drinking water resources: An appeal to national and local governments, water boards and farmers	The Science of the total environment (2020), Vol. 699, pp. 134186	5.4.1 case b) Relevant but supplementary information: Does not provide new data but summarizes exceedances of >75% of 0.1 ug/L for GW abstractions used for Drinking Water. Also proposes measures to reduce pesticide concentrations in GW.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
596	Tahir H. M. et al.	CA 8.3	2019	Effect of Pesticides on Biological Control Potential of Neoscona theisi (Araneae: Araneidae)	JOURNAL OF INSECT SCIENCE (2019), Vol. 19, No. 2, pp. 1	5.4.1 case b) Relevant but supplementary information: Considered supplemental as the approach used does not follow an approach recognised at EU level for use in risk assessment.
597	Takeuchi I. et al.	CA 5.9.5	2019	Decrease in Butyrylcholinesterase Accompanied by Intermediate-like Syndrome after Massive Ingestion of a Glyphosate-surfactant.	Internal medicine (2019), Vol. 15; No. 58, pp. 3057	5.4.1 case b) Relevant but supplementary information: Description of a poisoning case related to a surfactant, symptoms are not unusual.
598	Tang T. et al.	CA 7.5	2017	Hysteresis and parent-metabolite analyses unravel characteristic pesticide transport mechanisms in a mixed land use catchment.	Water Research (2017), Vol. 124, pp. 663	5.4.1 case b) Relevant but supplementary information: Use of adapted hysteresis modeling to improve understanding on pesticide metabolite transport behaviours in catchments with diverse pesticide sources and complex transport mechanisms and provide a basis for effective management strategies. Provides information on other sources of AMPA (besides glyphosate degradation).
599	Tongo I. et al.	CA 6.4.2	2015	Human health risks associated with residual pesticide levels in edible tissues of slaughtered cattle in Benin City, Southern Nigeria.	Toxicology Reports (2015), Vol. 2, pp. 1117	5.4.1 case b) Relevant but supplementary information: Provides information on the relative residue levels in various edible cattle tissues but since the exposure of the cattle is not known no transfer factors can be derived.
600	Tarazona J. V. et al.	CA 5.5	2017	Glyphosate toxicity and carcinogenicity: a review of the scientific basis of the European Union assessment and its differences with IARC.	Archives of toxicology (2017), Vol. 91, No. 8, pp. 2723	5.4.1 case b) Relevant but supplementary information: Comparison of EU regulatory review with IARC evaluation.
601	Tarazona J. V. et al.	CA 5.5	2017	Response to the reply by C. J. Portier and P. Clausing, concerning our review "Glyphosate toxicity and carcinogenicity: a review of the scientific basis of the European Union assessment and its differences with IARC".	Archives of toxicology (2017), Vol. 91, No. 9, pp. 3199	5.4.1 case b) Relevant but supplementary information: Letter to the Editor, ref to Portier et al_2017_Arch Toxicol (2017), Vol. 91, No. 9, pp. 3195-3197.
602	Tarone R. E.	CA 5.5	2018	On the International Agency for Research on Cancer classification of glyphosate as a probable human carcinogen	European journal of cancer prevention (2018), Vol. 27, No. 1, pp. 82	5.4.1 case b) Relevant but supplementary information: review, secondary source.
603	Tauchnitz N. et al.	CA 7.5	2017	Quantification of pesticide input into surface waters in a small catchment area (Querne/Weida). Quantifizierung von Pflanzenschutzmittel(PSM)-Eintraegen in Oberflaechengewaesser in einem Kleineinzugsgebiet (Querne/Weida).	Lysimeter Forschung-Moeglichkeiten und Grenzen Lysimeter research - options and limits, 9-10 May 2017, Raumberg-Gumpenstein, Austria (2017), pp. 11	5.4.1 case b) Relevant but supplementary information: Provides information on surface water sampling in Germany, but no concentrations of glyphosate reported.
604	Thakur D. S. et al.	CA 5.9.5	2014	Glyphosate poisoning with acute pulmonary edema.	Toxicology international (2014), Vol. 21, No. 3, pp. 328	5.4.1 case b) Relevant but supplementary information: This is a case report of the clinical manifestations of glyphosate-based herbicide ingestions and discusses predictors of mortality in suicidal ingestions and therefore should not impact registration decisions.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
605	Thompson H. M. et al.	CA 6.10.1	2014	Evaluating exposure and potential effects on honeybee brood (Apis mellifera) development using glyphosate as an example.	Integrated environmental assessment and management (2014), Vol. 10, No. 3, pp. 463	5.4.1 case b) Relevant but supplementary information: No MRLs are currently set for presented commodities and these commodities are not considered for dietary risk assessment either. Therefore, the findings do not directly impact the consumer risk assessment.
606	Tizhe E. V. et al.	CA 5.3	2014	Influence of zinc supplementation on histopathological changes in the stomach, liver, kidney, brain, pancreas and spleen during subchronic exposure of Wistar rats to glyphosate.	Comparative clinical pathology (2014), Vol. 23, No. 5, pp. 1535	5.4.1 case b) Relevant but supplementary information: Formulation tested (Bushfire, Monsanto Europe, 360 g/L glyphosate; 441 g/L potassium salt). Non-representative formulation for EU.
607	Tizhe E. V. et al.	CA 5.3	2013	Haematogical changes induced by subchronic glyphosate exposure: ameliorative effect of zinc in Wistar rats.	Sokoto Journal of Veterinary Sciences (2013), Vol. 11, No. 2, pp. 28	5.4.1 case b) Relevant but supplementary information: Formulation tested in vivo (Bushfire, 441 g/L potassium salt, 360 g/L a.e.). Non-representative formulation for EU.
608	Todorovic G. R. et al.	CA 7.5	2010	Dispersion of glyphosate in soils through erosion. Environmental Quality 4	Air, water, and soil pollution (2010), Vol. 4, pp. 15	5.4.1 case b) Relevant but supplementary information: Analysis of runoff samples from small vegetative field plots following glyphosate application and subsequent artificial rain is not expected to provide additional relevant data. Furthermore, no details of analytical methods is reported.
609	Tome H. V. V. et al.	CA 8.3.1	2020	Frequently encountered pesticides can cause multiple disorders in developing worker honey bees.	Environmental pollution (2020), Vol. 256, pp. 113420	5.4.1 case b) Relevant but supplementary information: The data presented are relevant to the wider discussion of the effects of glyphosate on pollinators, but as the rates established for glyphosate used in the study were based on reported levels found in pollen and wax from another active substance, from an exposure perspective, they cannot be related to glyphosate.
610	Tong M. et al.	CA 6.2.1	2017	Uptake, Translocation, Metabolism, and Distribution of Glyphosate in Nontarget Tea Plant (Camellia sinensis L.).	Journal of agricultural and food chemistry (2017), Vol. 65, No. 35, pp. 7638	5.4.1 case b) Relevant but supplementary information: Supplementary information on the uptake and metabolism of glyphosatephoste applied in nutrient solution totea plants.
611	Tribe D.	CA 5.5	2013	Serious inadequacies regarding the pathology data presented in the paper by Seralini et al. (2012).	Food and Chemical Toxicology (2013), Vol. 53, pp. 452	5.4.1 case b) Relevant but supplementary information: Letter to the Editor, Comment on Seralini et al._2012_Food Chemical Toxicol (2012), retracted.
612	Truta E. et al.	CA 8.6.2	2011	Evaluation of Roundup-induced toxicity on genetic material and on length growth of barley seedlings.	Acta biologica Hungarica (2011), Vol. 62, No. 3, pp. 290	5.4.1 case b) Relevant but supplementary information: Impact of glyphosate product on barley seedling development. Unclear how endpoint could be used in risk assessment.
613	Tush D. et al.	CA 7.1.2.1.1	2018	Dissipation of polyoxyethylene tallow amine (POEA) and glyphosate in an agricultural field and their co-occurrence on streambed sediments.	The Science of the total environment (2018), Vol. 636, pp. 212	5.4.1 case b) Relevant but supplementary information: Study was conducted in the US but provides data on POEA, glyphosate, and AMPA adsorption and dissipation in top 45 cm of soil and in stream bed sediments. Conclusions useful in qualitative rather than quantitative way.
614	Uchida M. et al.	CA 8.2.1	2012	Toxicity evaluation of glyphosate agrochemical components using Japanese medaka (Oryzias latipes) and DNA microarray gene expression analysis	The Journal of toxicological sciences (2012), Vol. 37, No. 2, pp. 245	5.4.1 case b) Relevant but supplementary information: The material and methods part lack some important information. Only glyphosate was sufficiently documented, but the formulation Roundup is not specified. In addition, it is unclear whether the test concentrations for the formulation refer to the active ingredient or to the product. The test design is not adequately described. Only a concentration range

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
						was given and tested dose rates remain unclear. The performance of a control group as well as the description of observations is not reported. No mortality data neither for the test concentrations nor for the controls was given to evaluate the results. Furthermore, there was no analytical verification of test concentrations reported. No suitable exposure throughout the test was demonstrated and thus the reliability of the study is questionable. The test guideline followed was not stated nor was the study conducted to GLP.
615	Ulu T. C. et al.	CA 8.4.2	2016	Effects of different pesticides on virulence and mortality of some entomopathogenic nematodes.	ISJ-Invertebrate Survival Journal (2016), Vol. 13, pp. 111	5.4.1 case b) Relevant but supplementary information: Nematode mortality and effects on virulence are not endpoints used in EU level ecotox risk assessment for the renewal.
616	Umsza-Guez M. A. et al.	CA 6.10.1	2019	Herbicide determination in Brazilian propolis using high pressure liquid chromatography.	International journal of environmental health research (2019) pp. 1 (Ahead of print)	5.4.1 case b) Relevant but supplementary information: Currently no EU MRL is set for propolis and since propolis is not taken into account for dietary risk assessment in the EU. Because of that and due to the reliability of the analytical method is not clearly established the publication is considered supplementary.
617	Uren Webster T. M. et al.	CA 8.2.2, CA 8.2.3, CP 10.2.2, CP 10.2.3	2014	Effects of glyphosate and its formulation, roundup, on reproduction in zebrafish (Danio rerio).	Environmental science & technology (2014), Vol. 48, No. 2, pp. 1271	5.4.1 case b) Relevant but supplementary information: The test substance Roundup GC is not the representative formulation for the Annex I renewal. There was only a single glyphosate exposure group at 10 mg/L prepared from analytical grade. The purity of the material was not confirmed, but it was stated to be analytical grade. The study provides no endpoints for glyphosate, that could be used in the ecotoxicology risk assessment for Annex I renewal. Thus the study is conssidered supplementary only.
618	Usenko O. M. et al.	CA 8.2, CP 10.2	2010	Effect of fluorine containing herbicides on functional activity of algae	Gidrobiologicheskii Zhurnal (2010), Vol. 46, No. 1, pp. 75	5.4.1 case b) Relevant but supplementary information: Phytoplankton collected in a field in Ukraine. Unclear what exposure the test species may have had to pesticides or other chemicals previously. Test design is not specified at all. Unclear main points: acclimatisation period, application of test substance, number of replicates or cells per replicates. Unclear if result values refer to product or active igredient. No results in values which can be used for the risk assessment.
619	Varnai V. M. et al.	CA 5.9.5	2013	Report of the poison control centre for the period 1 January - 31 December 2012. Original title: Izvjesce centra za kontrolu otrovanja za razdoblje od 1. Sijecnja do 31. Prosinca 2012.	Arhiv za Higijenu Rada i Toksikologiju (2013), Vol. 64, No. 1, pp. 183	5.4.1 case b) Relevant but supplementary information: This is a report from the Croatian Poison Center documenting types of exposure reported in 2012. Of the 134 calls regarding pesticide exposure, 84 demonstrated "effects" with 9 described as "serious". Glyphosate was listed as one of the pesticides demonstrating a serious effect. There were no other details provided and there were no fatalities as a result of pesticide exposure.
620	Vazquez D. E. et al.	CA 8.3.1	2018	Glyphosate affects the larval development of honey bees depending on the susceptibility of colonies	PLoS One (2018), Vol. 13, No. 10, pp. E0205074	5.4.1 case b) Relevant but supplementary information: Endpoints presented are considered supplemental as the method of exposure used for the bees were not described.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
621	Veale D. J. H. et al.	CA 5.9.5	2013	Toxicovigilance I: a survey of acute poisonings in South Africa based on tygerberg poison information centre data	SAMJ (2013), Vol. 103, No. 5, pp. 293	5.4.1 case b) Relevant but supplementary information: This article summarises the chemicals used in South Africa for suicide. Glyphosate is only mentioned in a table in the article as being involved in 23 cases over a 1 year period accounting for 0.9% of the overall cases reported.
622	Velasques R. R. et al.	CA 8.2.1	2016	Roundup(®) in Zebrafish: Effects on Oxidative Status and Gene Expression.	Zebrafish (2016), Vol. 13, No. 5, pp. 432	5.4.1 case b) Relevant but supplementary information: The data presented demonstrates that in the presence of a toxicant, there are changes in the oxidative status of zebrafish gills and liver tissue. However, these data cannot be related to an Annex I risk assessment for renewal.
623	Velastegui-Espin G. P. et al.	CA 5.6.1	2018	Glyphosate: its use and implications for human health. El glifosato: su uso e implicaciones en la salud humana.	Journal of the Selva Andina Biosphere (2018), Vol. 6, No. 2, pp. 86	5.4.1 case b) Relevant but supplementary information: review, secondary source of information.
624	Vera-Candioti J. et al.	CA 5.4	2013	Single-cell gel electrophoresis assay in the ten spotted live-bearer fish, Cnesterodon decemmaculatus (Jenyns, 1842), as bioassay for agrochemical-induced genotoxicity.	Ecotoxicology and environmental safety (2013), Vol. 98, pp. 368	5.4.1 case b) Relevant but supplementary information: GBHs tested on fish
625	Vidyadhara et al.	CA 5.9.5	2014	Atypical presentation of glyphosate poisoning.	Indian Journal of Critical Care Medicine (2014), Vol. 18, Suppl. 1, pp. S36.	5.4.1 case b) Relevant but supplementary information: This is a report about multiorgan failure after suicidal ingestion of formulated glyphosate and should not impact re-registration.
626	Vincent K. et al.	CA 8.1.4	2015	The toxicity of glyphosate alone and glyphosate-surfactant mixtures to western toad (Anaxyrus boreas) tadpoles.	Environmental toxicology and chemistry (2015), Vol. 34, No. 12, pp. 2791	5.4.1 case b) Relevant but supplementary information: Approaches used are not recognised approaches, but do inform on the toxicity of glyphosate IPA salt to amphibians in the glyphosate only investigations.
627	Waiman C. V. et al.	CA 7.1.3.1.1	2016	The simultaneous presence of glyphosate and phosphate at the goethite surface as seen by XPS, ATR-FTIR and competitive adsorption isotherms	Colloids and Surfaces A: Physicochemical and Engineering Aspects (2016), Vol. 498, pp. 121	5.4.1 case b) Relevant but supplementary information: The study does not investigate soil adsorption but mineral. The study does not include an endpoint relevant for the risk assessment.
628	Wang D. et al.	CA 5.9.5	2019	Successful extracorporeal membrane oxygenation support for severe acute diquat and glyphosate poisoning: A case report.	Medicine (2019), Vol. 98, No. 6., pp. e14414	5.4.1 case b) Relevant but supplementary information: This article describes using ECMO to manage a patient with multiorgan failure after formulated glyphosate and diquat ingestion. Since this is describing medical management of suicidal overdoses, it should not impact reregistration
629	Wang G. et al.	CA 5.9.4	2011	Parkinsonism after chronic occupational exposure to glyphosate.	Parkinsonism & related disorders (2011), Vol. 17, No. 6, pp. 486	5.4.1 case b) Relevant but supplementary information: Reversible Parkinsonism in case of acute intoxication is a well-known effect and not specific for glyphosate. No clear causal connection of chronic Parkinsonism to glyphosate from the presented results.
630	Wang M. et al.	CA 7.1.3.1.1	2019	Montmorillonites Can Tightly Bind Glyphosate and Paraquat Reducing Toxin Exposures and Toxicity	ACS omega (2019), Vol. 4, No. 18, pp. 17702	5.4.1 case b) Relevant but supplementary information: Article provides binding properties of glyphosate to calcium and sodium montmorillonite clay. Supplementary information as clay is a soil component, not a soil.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
631	Weir S. M. et al.	CA 8.1.4	2016	Acute toxicity and risk to lizards of rodenticides and herbicides commonly used in New Zealand.	New Zealand Journal of Ecology (2016), Vol. 40, No. 3, pp. 342	5.4.1 case b) Relevant but supplementary information: Species relevance is difficult to relate to an EU level ecotox risk assessment for Annex I.
632	Williams A. L. et al.	CA 5.6	2012	Developmental and reproductive outcomes in humans and animals after glyphosate exposure: a critical analysis.	Journal of toxicology and environmental health. Part B, Critical reviews (2012), Vol. 15, No. 1, pp. 39	5.4.1 case b) Relevant but supplementary information: review, secondary source.
633	Williams B. K. et al.	CA 8.1.4	2010	Larval responses of three midwestern anurans to chronic, low-dose exposures of four herbicides.	Archives of environmental contamination and toxicology (2010), Vol. 58, No. 3, pp. 819	5.4.1 case b) Relevant but supplementary information: Eggs collected from wetlands.
634	Williams G. M.	CA 5.5	2018	Corrigendum to: Glyphosate rodent carcinogenicity bioassay expert panel review (Critical Reviews in Toxicology, (2016), 46, sup1, (44-55), 10.1080/10408444.2016.1214679)	Critical Reviews in Toxicology (2018), Vol. 48, No. 10, pp. 914	5.4.1 case b) Relevant but supplementary information: Corrigendum to article Williams_2016, Critical reviews in toxicology (2016), Vol. 46, No. sup1, pp. 4
635	Williams G. M. et al.	CA 5.5	2016	Glyphosate rodent carcinogenicity bioassay expert panel review.	Critical reviews in toxicology (2016), Vol. 46, No. sup1, pp. 44	5.4.1 case b) Relevant but supplementary information: review, secondary source.
636	Williams G. M. et al.	CA 5.5	2018	Corrigendum: A review of the carcinogenic potential of glyphosate by four independent expert panels and comparison to the IARC assessment.	Critical Reviews in Toxicology (2018), Vol. 48, No. 10, pp. 907	5.4.1 case b) Relevant but supplementary information: Corrigendum to: A review of the carcinogenic potential of glyphosate by four independent expert panels and comparison to the IARC assessment (Critical Reviews in Toxicology, (2016), 46, sup1, pp. 3-20.)
637	Williams G. M. et al.	CA 5.9.4	2016	A review of the carcinogenic potential of glyphosate by four independent expert panels and comparison to the IARC assessment.	Critical reviews in toxicology (2016), Vol. 46, No. sup1, pp. 3	5.4.1 case b) Relevant but supplementary information: review, secondary source.
638	Wood L. J.	CA 6.2.1	2019	The presence of glyphosate in forest plants with different life strategies one year after application.	Canadian Journal of Forest Research (2019), Vol. 49, No. 6, pp. 586	5.4.1 case b) Relevant but supplementary information: In order to properly interpret the findings of the publication, it would be important to determine the residues in the non-target crops shortly after application. However, this information is only available indirectly from other studies. According to the publication : “Compared with levels detected in forest plants immediately after application by Feng and Thompson (1990), levels detected in this study are very low.” This means that the residues shortly after application were extremely high, far above the levels that may occur in non-target plants in Europe due to contamination by spray-drift. For this reason and after full text review, the publication is considered to be of limited relevance to the EU renewal dossier. It only provides supplementary information.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
639	Wrobel M. H.	CA 5.8.2	2018	Glyphosate affects the secretion of regulators of uterine contractions in cows while it does not directly impair the motoric function of myometrium in vitro.	Toxicology and applied pharmacology (2018), Vol. 349, pp. 55	5.4.1 case b) Relevant but supplementary information: Glyphosate used is not sufficiently characterized and the analysis of glyphosate, hormones and prostaglandins is not sufficiently documented. This publication is considered unreliable.
640	Wu C. J. et al.	CA 5.9.5	2015	PiCCO interpretation for acute glyphosate intoxication with shock: Favors cardiogenic origin.	Clinical Toxicology (2015), Vol. 53, No. 4, pp. 329	5.4.1 case b) Relevant but supplementary information: This is a report regarding multiorgan failure following suicidal ingestion of formulated glyphosate and should not impact re-registration.
641	Wu I-L. et al.	CA 5.9.5	2015	Glyphosate intoxication resulting in ventricular dysrhythmias and cardiogenic shock.	Clinical Toxicology (2015), Vol. 53, No. 4, pp. 329	5.4.1 case b) Relevant but supplementary information: This is a report regarding multiorgan failure and use of ECMO following suicidal ingestion of formulated glyphosate and should not impact re-registration.
642	Wu M-H. et al.	CA 5.9.5	2015	Successful treatment with hemodialysis for acute renal failure after glyphosate poisoning: A case report.	Clinical Toxicology (2015), Vol. 53, No. 4, pp. 330	5.4.1 case b) Relevant but supplementary information: This is a report about renal failure and haemodialysis after suicidal ingestion of formulated glyphosate and should not impact re-registration.
643	Wunnapuk K. et al.	CA 5.9.5	2014	Use of a glyphosate-based herbicide-induced nephrotoxicity model to investigate a panel of kidney injury biomarkers.	Toxicology letters (2014), Vol. 225, No. 1, pp. 192	5.4.1 case b) Relevant but supplementary information: Formulation tested in vivo (Concentrate Roundup Weedkiller, 360 g/L isopropylamine salt, Australia) at high acute doses of 250 - 2500 mg/kg.
644	Xia S. et al.	CA 8.2.3	2013	Induction of vitellogenin gene expression in medaka exposed to glyphosate and potential molecular mechanism	Zhongguo Huanjing Kexue (2013), Vol. 33, No. 9, pp. 1656	5.4.1 case b) Relevant but supplementary information: The study was not conducted according to GLP and a relevant guideline was not followed. The current EU stepwise endocrine approach is detailed, and the approach conducted within this study does conform to the suggested guidance. Significant limitations in the study include a lack of a standard testing approach or specific validation criteria. The test concentrations were not analytically verified and the critical dose regime provided to the Medaka is lacking. Similarly the source of the fish tested is unknown. No clear dose response relationship or derived endpoint from the study could be determined.
645	Xie RuiTao et al.	CA 8.2.1, CP 10.2.1	2010	The acute toxicity of five pesticides to yellow catfish Pelteobagrus vachelli.	Fisheries Science (2010), Vol. 29, No. 5, pp. 274	5.4.1 case b) Relevant but supplementary information: Acute effects on Yellow Catfish in a static 96 h test. The application method (preparation of test solution etc.) is not specified. The concentrations used is unclear, and appears to be tested in a range between 7 to 20 mg/L No information on the test item whether it was product or active ingredient was provided. Therefore, the biological results can not be used for the risk assessment.
646	Xu Y. et al.	CA 8.2.8, CP 10.2.3	2010	Acute Toxicity of Ten Pesticides to Larval Red Swamp Crayfish Procambarus Clarkii.	Asian Journal of Ecotoxicology (2010), Vol. 5, No. 1, pp. 50.	5.4.1 case b) Relevant but supplementary information: Effects on red swamp crayfish. Test species raised in and collected from a rice field in Shanghai. It is not clear what exposure the test species may have had to pesticides or other chemicals previously. It is not clear if the glyphopsate is technical or product. No biological results (e.g. mortalities) for the control or any test concentration reported. The study is considered unreliable.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
647	Xu Y-g. et al.	CA 8.2.4	2015	Joint Toxicity of Glyphosate and As(III)to Daphnia magna in Aquatic Environment	Journal of Agro-Environment Science (2015), Vol. 34, No. 11, pp. 2076	5.4.1 case b) Relevant but supplementary information: This study concentrates on models used to estimate the individual and mixture toxicity of glyphosate and As (III) to Daphnia magna. LC50 values were compared with measured data. The study was not conducted according to GLP, however the acute toxicity studies were conducted to a relevant ISO guideline. Preparation and dose verification were not performed therefore the endpoint is questionable. The study is considered unreliable.
648	Yan W. et al.	CA 7.1.3.1.1	2018	Molecular Insights into Glyphosate Adsorption to Goethite Gained from ATR-FTIR, Two-Dimensional Correlation Spectroscopy, and DFT Study.	Environmental science & technology (2018), Vol. 52, No. 4, pp. 1946	5.4.1 case b) Relevant but supplementary information: Study of molecular-level interfacial configurations and reaction mechanisms of glyphosate with iron (hydr)oxides. The influence of phosphate is also described.
649	Yang Y. et al.	CA 7.1.3.1.1, CA 7.2.1.3	2018	Comparative study of glyphosate removal on goethite and magnetite: Adsorption and photo-degradation.	Chemical Engineering Journal (2018), Vol. 352, pp. 581	5.4.1 case b) Relevant but supplementary information: Study of photodegradation of glyphosate in environment by goethite and magnetite.
650	You M-J. et al.	CA 5.9.5	2015	Clostridium tertium bacteremia in a patient with glyphosate ingestion.	The American journal of case reports (2015), Vol. 16, pp. 4	5.4.1 case b) Relevant but supplementary information: This article discussed the use of haemodialysis in the management of hyperkalemia and metabolic acidosis after formulated glyphosate overdose. Haemodialysis is often used to manage refractory hyperkalemia and acidosis. This article discusses medical management of suicidal ingestions and therefore should not impact registration decisions.
651	You W-y. et al.	CA 8.3.2, CP 10.3.2	2010	Toxicity Evaluation of Sixteen Herbicides to Bombyx mori.	Asian Journal of Ecotoxicology (2010), Vol. 5, No. 1, pp. 91	5.4.1 case b) Relevant but supplementary information: Effects on silkworm via exposure of treated leaves. However, the application method is not specified. The amount of test solution per leaf, the consumed diet per silkworm and the number of organisms per replicate is unclear. Also no control results are available. Therefore the biological results can not be used for risk assessment.
652	You Y. et al.	CA 5.9.5	2012	Effect of intravenous fat emulsion therapy on glyphosate-surfactant-induced cardiovascular collapse.	The American journal of emergency medicine (2012), Vol. 30, No. 9, pp. 2097.e1	5.4.1 case b) Relevant but supplementary information: This article is discussing the efficacy of intravenous fat emulsion as therapy for formulated glyphosate overdose. This report contributes to the evidence that intravenous fat emulsion may be a useful treatment for glyphosate overdose as it may limit the toxicity associated with large surfactant ingestions. There are no RCTs for this as it is a suicidal overdose situation.
653	Yu G. C. et al.	CA 5.9.5	2017	The clinical analytics of 10 patients with acute glyphosate poisoning	Chinese journal of industrial hygiene and occupational diseases (2017), Vol. 35, No. 5, pp. 382	5.4.1 case b) Relevant but supplementary information: This is a case study describing the clinical course of 10 patients who drank formulated glyphosate. There were no long-term sequelae of ingestion, and all 10 patients survived. These were suicdal ingestions and should not impact re-registration.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
654	Yusof S. et al.	CA 8.2.1	2014	Effect of glyphosate-based herbicide on early life stages of Java medaka (Oryzias javanicus): a potential tropical test fish.	Marine pollution bulletin (2014), Vol. 85, No. 2, pp. 49	5.4.1 case b) Relevant but supplementary information: There is insufficient explanation provided on the analytical verification of the test concentrations. The test concentrations were high ranging from 100 to 500 ppm. A regulatory endpoint is not available. There is no verification of dose levels, and the study does not conform to any guidelines nor GLP. The article can be considered as supplementary information only.
655	Zhang C. et al.	CA 5.9.4	2016	Health effect of agricultural pesticide use in China: implications for the development of GM crops	Scientific reports (2016 Vol. 6, pp. 34918	5.4.1 case b) Relevant but supplementary information: Results are likely to be valid for glyphosate under the exposure circumstances of the study, however the study was not appropriately designed for assessment of chronic health effects. In particular, there were short follow-ups and limited exposure histories.
656	Zhang C. et al.	CA 5.9.4	2018	A comparison of the effects of agricultural pesticide uses on peripheral nerve conduction in China	Scientific Reports (2018), Vol. 8, No. 1, pp. 1	5.4.1 case b) Relevant but supplementary information: Results agree with biological properties of the various pesticides. However, an inappropriate design to study the potentially chronic association between nerve conduction and pesticide exposure. There was short follow-up and limited exposure histories.
657	Zhang F. et al.	CA 5.9.1	2019	Study on the effect of occupational exposure to glyphosate on blood routine.	Chinese journal of industrial hygiene and occupational diseases (2019), Vol. 37, No. 2, pp. 126	5.4.1 case b) Relevant but supplementary information: No adverse outcome identified.
658	Zhang F. et al.	CA 5.9.2	2018	Relationships between internal and external exposure indicators of glyphosate in occupational workers.	Journal of Environmental & Occupational Medicine (2018), Vol. 35, No. 11, pp. 990	5.4.1 case b) Relevant but supplementary information: Manufacturing practices in China are not representative of EU manufacturing protocols
659	Zhang F. et al.	CA 5.9.4	2017	Study of the effect of occupational exposure to glyphosate on hepatorenal function.	Chinese journal of preventive medicine (2017), Vol. 51, No. 7, pp. 615	5.4.1 case b) Relevant but supplementary information: Poorly described study design, methods, and analysis. This publication is considered unreliable.
660	Zhang K. et al.	CA 7.1.4	2019	Can we use a simple modelling tool to validate stormwater biofilters for herbicides treatment?	Urban Water Journal (2019), Vol. 16, pp. 412	5.4.1 case b) Relevant but supplementary information: Biofilter validation model. Field validation work performed in Australia. Model may be of interest even though field data not directly relevant to the EU.
661	Zhang L. et al.	CA 5.9.4	2019	Exposure to glyphosate-based herbicides and risk for non-Hodgkin lymphoma: A meta-analysis and supporting evidence	Mutation Research, Reviews in Mutation Research (2019), Vol. 781, pp. 186	5.4.1 case b) Relevant but supplementary information: Meta-analyses cannot overcome the limitations of the studies included. This publication is considered unreliable.
662	Zhang Q. et al.	CA 8.3.2, CP 10.3.2	2011	An evaluation on acute toxicity of 29 pesticides to Bombyx mori	Canye Kexue (2011), Vol. 37, No. 2, pp. 343	5.4.1 case b) Relevant but supplementary information: Effects of glyphosate (95% TC) on silkworms by using the leaf dipping method: 5 g mulberry leaves were evenly immersed in 10 mL test solution for 10s. However, no useful concentration can be derived. No control results available.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point number)	Year	Title	Source	Justification
663	Zhang S. et al.	CA 8.2.1	2017	Biological impacts of glyphosate on morphology, embryo biomechanics and larval behavior in zebrafish (Danio rerio).	Chemosphere (2017), Vol. 181, pp. 270	5.4.1 case b) Relevant but supplementary information: Provides information on a test species that is relied upon in the risk assessment. But endpoints cannot be related to an EU level ecotox risk assessment.
664	Zhang W. et al.	CA 7.1.4.1.1, CA 7.1.4.1.2, CA 7.2.1.1	2019	A method for determining glyphosate and its metabolite aminomethyl phosphonic acid by gas chromatography-flame photometric detection.	Journal of chromatography. A (2019), Vol. 1589, pp. 116	5.4.1 case b) Relevant but supplementary information: Primarily an analytical methods paper with examples of hydrolysis and column leaching data provided. Insufficient methodology information provided for risk assessment.
665	Zhao H. et al.	CA 5.8.3	2018	Effects of Glyphosate on Testosterone Synthesis in Male Rats.	Asian Journal of Ecotoxicology (2018), Vol. 13, No. 5, pp. 242	5.4.1 case b) Relevant but supplementary information: Reporting of the experimental conditions is not complete.
666	Zhao W. et al.	CA 5.8.2	2011	Effect of glyphosate on oxidative damage of mice	Dulixue Zazhi (2011), Vol. 25, No. 5, pp. 364	5.4.1 case b) Relevant but supplementary information: No new information relevant for the risk assessment.
667	Zhao Y. et al.	CA 7.1.3.1.1	2015	Use of Fe/Al drinking water treatment residuals as amendments for enhancing the retention capacity of glyphosate in agricultural soils.	Journal of environmental sciences (2015), Vol. 34, pp. 133	5.4.1 case b) Relevant but supplementary information: Use of Fe/Al drinking water treatment residuals (WTRs) as a soil amendment to increase glyphosate sorption and decrease desorption in soils. Supplementary information not directly related to efate guideline studies.
668	Zheng Q. et al.	CA 5.9.2	2018	Reversible Parkinsonism induced by acute exposure glyphosate.	Parkinsonism & related disorders (2018), Vol. 50, pp. 121	5.4.1 case b) Relevant but supplementary information: Reversible Parkinsonism in case of acute in-toxication is a well-known effect and not specific for glyphosate.
669	Zheng Q. et al.	CA 5.9.2	2018	Reply for the comment on "Reversible Parkinsonism induced by acute exposure glyphosate".	Parkinsonism and Related Disorders (2018), Vol. 56, pp. 108	5.4.1 case b) Relevant but supplementary information: Letter to the editor, comments on Goldstein_2018, Parkinsonism Relat Disord. (2018), Vol. 56, pp. 107
670	Zouaoui K. et al.	CA 5.9.5	2013	Determination of glyphosate and AMPA in blood and urine from humans: about 13 cases of acute intoxication.	Forensic science international (2013), Vol. 226, No. 1-3, pp. E20	5.4.1 case b) Relevant but supplementary information: This report demonstrates a link between higher blood and urine concentrations with formulated glyphosate overdoses and a poorer outcome. This is unsurprising as it reflects that patients drank a larger volume. Larger volumes of formulated product are associated with more toxicity due to the caustic nature of the surfactant, not the amount of active ingredient. All of the laboratory parameters are expected in critically ill patients. As these were suicidal ingestions, this paper should not impact re-registration.
671	Zyoud S. H. et al.	CA 5.9.5	2017	Global research production in glyphosate intoxication from 1978 to 2015: A bibliometric analysis.	Human & experimental toxicology (2017), Vol. 36, No. 10, pp. 997	5.4.1 case b) Relevant but supplementary information: This article analyzes the reports of increase in glyphosate intoxications from the early 1970s-2016. Given the increase in use over the same time period it is not surprising that there has been a increase in reporting. This should not impact re-registration.

Table 36: Articles of unclear relevance (category C) after detailed assessment: sorted by data requirement(s)

No	Data requirement (indicated by the corresponding CA / CP data point No.)	Author(s)	Year	Title	Source	Justification
673	CA 5.3	Aitbali Y. et al.	2018	Glyphosate based- herbicide exposure affects gut microbiota, anxiety and depression-like behaviors in mice.	Neurotoxicology and teratology (2018), Vol. 67, pp. 44	5.4.1 case c) Relevance cannot be determined: Potential effects to gut microbes are not part of the EU risk assessments. Suitable scientific approaches to assess effects are not specified, thus relevance of the effects remained unclear. This study uses Roundup administered at half of or at the NOAEL concentration via a stomach tube. The surfactant is irritating and any negative results are not surprising. The acidic effect of glyphosate is also a concern.
675	CA 5.8	Bote K. et al.	2019	Minimum Inhibitory Concentration of Glyphosate and of a Glyphosate-Containing Herbicide Formulation for Escherichia coli Isolates - Differences Between Pathogenicand Non-pathogenic Isolates and Between Host Species.	Frontiers in microbiology (2019), Vol. 10, pp. 932	5.4.1 case c) Relevance cannot be determined: Potential effects to gut microbes are not part of the EU risk assessments. Suitable scientific approaches to assess effects are not specified, thus relevance of the effects remained unclear. The study uses a system designed to measure antibiotic MICs that are usually done by culturing bacteria in a specific media for antibiotiic diffusion in ug/ml range. Instead the paperlooks at glyphosate in mg/ml range following MIC procedures. There is no justification for the dose, which should be at about 100000X lower dose. Most gut microbes microbes are anaerobes.
680	CA 5.8	Kruger M. et al.	2013	Glyphosate suppresses the antagonistic effect of Enterococcus spp. on Clostridium botulinum.	Anaerobe (2013), Vol. 20, pp. 74	5.4.1 case c) Relevance cannot be determined: Potential effects to gut microbes are not part of the EU risk assessments. Suitable scientific approaches to assess effects are not specified, thus relevance of the effects remained unclear. Moreover, the doses used in this study are not justified and are unrealistically high. Cultures are batch culture and it is unclear if conditions are to get values in growing phase. Comparisons between glyphosate and Roundup are completely different so they cannot be compared.
679	CA 5.8.2	Good P.	2018	Evidence the U.S. autism epidemic initiated by acetaminophen (Tylenol) is aggravated by oral antibiotic amoxicillin/clavulanate (Augmentin) and now exponentially by herbicide glyphosate (Roundup).	Clinical nutrition ESPEN (2018), Vol. 23, pp. 171	5.4.1 case c) Relevance cannot be determined: Potential effects to gut microbes are not part of the EU risk assessments. Suitable scientific approaches to assess effects are not specified, thus relevance of the effects remained unclear. This paper contains no new data. It uses computer algorithms to make associations that are not proved. It claims that glyphosate impacts methionine and tryptophan and ignores that these amino acids are not only essential for the human diet but that microbially derived amino acids are only available via coprophagy.

No	Data requirement (indicated by the corresponding CA / CP data point No.)	Author(s)	Year	Title	Source	Justification
681	CA 5.8.2	Lozano V. L. et al.	2018	Sex-dependent impact of Roundup on the rat gut microbiome.	Toxicology reports (2018), Vol. 5, pp. 96	5.4.1 case c) Relevance cannot be determined: Potential effects to gut microbes are not part of the EU risk assessments. Suitable scientific approaches to assess effects are not specified, thus relevance of the effects remained unclear. This study has a number of issues related to design: Rats are at the end of their life when feces were sampled. It is not clear of feces were sampled pre- or post mortem. Results are confounded by advanced age or even tumor status of these rats, predominantly mammary. The smaller than expected number of phyla may be related to age of the rats. Short-term responses are not surprising: cells in direct contact with a substance in a test tube (liquid medium) will respond differently than cells exposed to that same substance within their natural environment. So in vitro data usually show cells have a greater sensitivity to the substance than in vivo data. And within the intestinal environment there is much to dilute, diminish or mask the substance's effect. This diminished effect in vivo has been documented repeatedly for a large number of test substances.
682	CA 5.8.2	Mao Q. et al.	2018	The Ramazzini Institute 13-week pilot study on glyphosate and Roundup administered at human-equivalent dose to Sprague Dawley rats: effects on the microbiome.	Environmental Health (2018), Vol. 29, No. 17, pp 50	5.4.1 case c) Relevance cannot be determined: Potential effects to gut microbes are not part of the EU risk assessments. Suitable scientific approaches to assess effects are not specified, thus relevance of the effects remained unclear. In this publication there was no clinical evidence of alterations in activity or behavior in pups. Body weight, water and feed consumption both in dams and pups were no different across the groups. Litter sizes were fully comparable among groups. To identify changes in microbes with multiple analyses in groups of animals is not unexpected and not necessarily indicative of a specific effect of the active substance. Changes within all rats due to maturation are greater than the differences between treatment groups. Moreover there are several points limiting the significance of the results: 1) information to calculate dose is not in the paper and seems intentional, 2) ADI is not the same as exposure which averages 1% of the ADI, and clinical signs were by definition not observed at the NOAEL which is 100-fold greater than the ADI. Animals in these toxicity studies had gut microbes, 3) Claims of exposure via milk are unfounded. The statistical analysis results in some differences but they do not put these changes into the context of whether they are normal.

No	Data requirement (indicated by the corresponding CA / CP data point No.)	Author(s)	Year	Title	Source	Justification
672	CA 6.4	Ackermann W. et al.	2015	The influence of glyphosate on the microbiota and production of botulinum neurotoxin during ruminal fermentation.	Current microbiology (2015), Vol. 70, No. 3, pp. 374.	5.4.1 case c) Relevance cannot be determined: Potential effects to gut microbes are not part of the EU risk assessments. Suitable scientific approaches to assess effects are not specified, thus relevance of the effects remained unclear. The system used in this study was not developed for microbiological research. Instead it was developed for comparing rates of digestion of feed. It is not a dynamic system like a rumen but a batch culture system. In 48 hrs they showed that adding glyphosate resulted in greater drops in pH as a result of inadequate buffering. The endpoints are consistent with decreased pH. They are inconsistent with more sophisticated rumen simulation techniques that found no effects from glyphosate.
676	CA 6.4	Bote K. et al.	2019	Effect of a Glyphosate-Containing Herbicide on Escherichia coli and Salmonella Ser. Typhimurium in an In Vitro Rumen Simulation System.	European journal of microbiology & immunology, (2019), Vol. 9, No. 3, pp. 94	5.4.1 case c) Relevance cannot be determined: Potential effects to gut microbes are not part of the EU risk assessments. Suitable scientific approaches to assess effects are not specified, thus relevance of the effects remained unclear. This study used a rumen simmulation technique that resonably replicated rumen conditions that allowed for dynamic effects of feeding and removal of waste products. In the absence of a suitable dossier datapoint it was allocated to point CA 6.4 as it concerns livestock. However, it is important to note that it is not a residue study and does not provide any data on the transfer of residues from feed to food of animal origin.
678	CA 6.4	Gerlach H. et al.	2014	Oral application of charcoal and humic acids to dairy cows influences Clostridium botulinum blood serum antibody level and glyphosate excretion in urine.	Journal of Clinical Toxicology (2014), Vol. 4, No. 2, pp. 186	5.4.1 case c) Relevance cannot be determined: Potential effects to gut microbes are not part of the EU risk assessments. Suitable scientific approaches to assess effects are not specified, thus relevance of the effects remained unclear. Additionally there significant difficiencies (lack of control group, treatments). Glyphosate concentrations in urine would be highly impacted by urine volume which is affected by milk production and environmental temperature. Interestingly, aerobes from feces are tested and ruminants rely on strict anaerobes in the rumen and colon.
684	CA 6.4	Nielsen L. N. c. r. et al.	2017	Glyphosate has limited short-term effects on commensal bacterial community composition in the gut environment due to sufficient aromatic amino acid levels	Environmental pollution (2018), Vol. 233, pp. 364	5.4.1 case c) Relevance cannot be determined: Potential effects to gut microbes are not part of the EU risk assessments. Suitable scientific approaches to assess effects are not specified, thus relevance of the effects remained unclear. This study shows that aromatic amino acids in culture conditions can negate impact on gut microbes from glyphosate because microbes with sensitive EPSPS can get these amino acids from the media.
685	CA 6.4	Riede S. et al.	2016	Investigations on the possible impact of a glyphosate-containing herbicide on ruminal metabolism and bacteria in vitro by means of the 'Rumen Simulation Technique'.	Journal of applied microbiology (2016), Vol. 121, No. 3, pp. 644	5.4.1 case c) Relevance cannot be determined: Potential effects to gut microbes are not part of the EU risk assessments. Suitable scientific approaches to assess effects are not specified, thus relevance of the effects remained unclear. In this study a system was developed for studying ruminal organisms that is dynamic, used mixed population of microbes, and is periodically fed with removal of waste products. There were no impacts of glyphosate formulation to this system.

No	Data requirement (indicated by the corresponding CA / CP data point No.)	Author(s)	Year	Title	Source	Justification
686	CA 6.4	Schrodl W. et al.	2014	Possible effects of glyphosate on Mucorales abundance in the rumen of dairy cows in Germany.	Current microbiology (2014), Vol. 69, No. 6, pp. 817	5.4.1 case c) Relevance cannot be determined: Potential effects to gut microbes are not part of the EU risk assessments. Suitable scientific approaches to assess effects are not specified, thus relevance of the effects remained unclear. Methodological shortcomings of the approaches used reduce the significance of the results (rumen fungi are stricly anaerobic, but they use aerobic cultures; 2) spot-urine concentrations are highly affected by the level of milk production 3) the ELISA is not validated and the LOD ws not used, no validation is described for other assays.
687	CA 6.4	Shehata A. A. et al.	2014	Neutralization of the antimicrobial effect of glyphosate by humic acid in vitro.	Chemosphere (2014), Vol. 104, pp. 258	5.4.1 case c) Relevance cannot be determined: Potential effects to gut microbes are not part of the EU risk assessments. Suitable scientific approaches to assess effects are not specified, thus relevance of the effects remained unclear. In the absence of a suitable dossier datapoint it was allocated to point CA 6.4 as it concerns livestock. However, it is important to note that it is not a residue study and does not provide any data on the transfer of residues from feed to food of animal origin.
688	CA 6.4	Shehata A. A. et al.	2013	The effect of glyphosate on potential pathogens and beneficial members of poultry microbiota in vitro.	Current microbiology (2013), Vol. 66, No. 4, pp. 350	5.4.1 case c) Relevance cannot be determined: Potential effects to gut microbes are not part of the EU risk assessments. Suitable scientific approaches to assess effects are not specified, thus relevance of the effects remained unclear. The publication does not provide new information (potential effects on microorganims with sensitive EPSPS are well known) and real world conditions of the gut are not replicated (study conducted on minimal media; microorganisms exposed to extremely high doses of glyphosate (1000x); aged cultures inducing additional stress).
689	CA 6.4	Vicini J. L. et al.	2019	Glyphosate in livestock: feed residues and animal health.	Journal of animal science (2019), Vol. 97, No. 11, pp. 4509	5.4.1 case c) Relevance cannot be determined: Potential effects to gut microbes are not part of the EU risk assessments. Suitable scientific approaches to assess effects are not specified, thus relevance of the effects remained unclear. Review article.
677	CA 6.5	Clair E. et al.	2012	Effects of Roundup(®) and glyphosate on three food microorganisms: Geotrichum candidum, Lactococcus lactis subsp. cremoris and Lactobacillus delbrueckii subsp. bulgaricus.	Current microbiology (May), Vol. 64, No. 5, pp. 486	5.4.1 case c) Relevance cannot be determined: Potential effects to gut microbes are not part of the EU risk assessments. Suitable scientific approaches to assess effects are not specified, thus relevance of the effects remained unclear. However, based on the results presented, it is not possible to reach a scientifically sound conclusion that the ability to make cheese using these organisms has been compromised by Roundup formulations. Application of dilutions (1%) of glyphosate were shown to inhibit a yeast-like organism, which is unsurprising. Surfactant solutions are routinely used to sanitize food processing equipment at concentrations at or above those tested by Clair et al. These concentrations are vastly higher than the concentrations of glyphosate or possible surfactant present (if any) in incoming milk.

No	Data requirement (indicated by the corresponding CA / CP data point No.)	Author(s)	Year	Title	Source	Justification
690	CA 8.2.8	Yang X. et al.	2019	Effects of the glyphosate-based herbicide roundup on the survival, immune response, digestive activities and gut microbiota of the Chinese mitten crab, Eriocheir sinensis	Aquatic toxicology (2019), Vol. 214, pp. 105243	5.4.1 case c) Relevance cannot be determined: Potential effects to gut microbes are not part of the EU risk assessments. Suitable scientific approaches to assess effects are not specified, thus relevance of the effects remained unclear. This study uses a high dose of roundup formulation. The surfactants in Roundup are known to be toxic to aquatic animals. This publication indicates a potentially significant decline in survivial due to Roundup. Therefore, results obtained for other endpoints beyond survival may be secondary to known toxicity of the surfactants.
674	CA 8.3.1.2	Blot N. et al.	2019	Glyphosate, but not its metabolite AMPA, alters the honeybee gut microbiota	PloS one (2019), Vol. 14, No. 4, pp. e0215466	5.4.1 case c) Relevance cannot be determined: Potential effects to gut microbes are not part of the EU risk assessments. Suitable scientific approaches to assess effects are not specified, thus relevance of the effects remained unclear. In this publication, experiments were conducted with a dose (10x increased) and an exposure for a longer period than is expected to occur from field exposure. Results indicated no effect on survival but some effect on profile of gut microbes. AMPA did not affect profile which could be due to AMPA does not inhibit EPSPS.
683	CA 8.3.1.2	Motta E. V. S. et al.	2018	Glyphosate perturbs the gut microbiota of honey bees.	Proceedings of the National Academy of Sciences of the United States of America (2018), Vol. 115, No. 41, pp. 10305	5.4.1 case c) Relevance cannot be determined: Potential effects to gut microbes are not part of the EU risk assessments. Suitable scientific approaches to assess effects are not specified, thus relevance of the effects remained unclear. This papers describes exposure of bees to glyphosate and its impact on gut microbiota.

Table 37: Articles of unclear relevance (category C) after detailed assessment: sorted by author(s)

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point No.)	Year	Title	Source	Justification
672	Ackermann W. et al.	CA 6.4	2015	The influence of glyphosate on the microbiota and production of botulinum neurotoxin during ruminal fermentation.	Current microbiology (2015), Vol. 70, No. 3, pp. 374.	5.4.1 case c) Relevance cannot be determined: Potential effects to gut microbes are not part of the EU risk assessments. Suitable scientific approaches to assess effects are not specified, thus relevance of the effects remained unclear. The system used in this study was not developed for microbiological research. Instead it was developed for comparing rates of digestion of feed. It is not a dynamic system like a rumen but a batch culture system. In 48 hrs they showed that adding glyphosate resulted in greater drops in pH as a result of inadequate buffering. The endpoints are consistent with decreased pH. They are inconsistent with more sophisticated rumen simulation techniques that found no effects from glyphosate.
673	Aitbali Y. et al.	CA 5.3	2018	Glyphosate based- herbicide exposure affects gut microbiota, anxiety and depression-like behaviors in mice.	Neurotoxicology and teratology (2018), Vol. 67, pp. 44	5.4.1 case c) Relevance cannot be determined: Potential effects to gut microbes are not part of the EU risk assessments. Suitable scientific approaches to assess effects are not specified, thus relevance of the effects remained unclear. This study uses Roundup administered at half of or at the NOAEL concentration via a stomach tube. The surfactant is irritating and any negative results are not surprising. The acidic effect of glyphosate is also a concern.
674	Blot N. et al.	CA 8.3.1.2	2019	Glyphosate, but not its metabolite AMPA, alters the honeybee gut microbiota	PloS one (2019), Vol. 14, No. 4, pp. e0215466	5.4.1 case c) Relevance cannot be determined: Potential effects to gut microbes are not part of the EU risk assessments. Suitable scientific approaches to assess effects are not specified, thus relevance of the effects remained unclear. In this publication, experiments were conducted with a dose (10x increased) and an exposure for a longer period than is expected to occur from field exposure. Results indicated no effect on survival but some effect on profile of gut microbes. AMPA did not affect profile which could be due to AMPA does not inhibit EPSPS.
675	Bote K. et al.	CA 5.8	2019	Minimum Inhibitory Concentration of Glyphosate and of a Glyphosate-Containing Herbicide Formulation for Escherichia coli Isolates - Differences Between Pathogenicand Non-pathogenic Isolates and Between Host Species.	Frontiers in microbiology (2019), Vol. 10, pp. 932	5.4.1 case c) Relevance cannot be determined: Potential effects to gut microbes are not part of the EU risk assessments. Suitable scientific approaches to assess effects are not specified, thus relevance of the effects remained unclear. The study uses a system designed to measure antibiotic MICs that are usually done by culturing bacteria in a specific media for antibiotiic diffusion in ug/ml range. Instead the paperlooks at glyphosate in mg/ml range following MIC procedures. There is no justification for the dose, which should be at about 100000X lower dose. Most gut microbes microbes are anaerobes.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point No.)	Year	Title	Source	Justification
676	Bote K. et al.	CA 6.4	2019	Effect of a Glyphosate-Containing Herbicide on Escherichia coli and Salmonella Ser. Typhimurium in an In Vitro Rumen Simulation System.	European journal of microbiology & immunology, (2019), Vol. 9, No. 3, pp. 94	5.4.1 case c) Relevance cannot be determined: Potential effects to gut microbes are not part of the EU risk assessments. Suitable scientific approaches to assess effects are not specified, thus relevance of the effects remained unclear. This study used a rumen simmulation technique that resonably replicated rumen conditions that allowed for dynamic effects of feeding and removal of waste products. In the absence of a suitable dossier datapoint it was allocated to point CA 6.4 as it concerns livestock. However, it is important to note that it is not a residue study and does not provide any data on the transfer of residues from feed to food of animal origin.
677	Clair E. et al.	CA 6.5	2012	Effects of Roundup(®) and glyphosate on three food microorganisms: Geotrichum candidum, Lactococcus lactis subsp. cremoris and Lactobacillus delbrueckii subsp. bulgaricus.	Current microbiology (May), Vol. 64, No. 5, pp. 486	5.4.1 case c) Relevance cannot be determined: Potential effects to gut microbes are not part of the EU risk assessments. Suitable scientific approaches to assess effects are not specified, thus relevance of the effects remained unclear. However, based on the results presented, it is not possible to reach a scientifically sound conclusion that the ability to make cheese using these organisms has been compromised by Roundup formulations. Application of dilutions (1%) of glyphosate were shown to inhibit a yeast-like organism, which is unsurprising. Surfactant solutions are routinely used to sanitize food processing equipment at concentrations at or above those tested by Clair et al. These concentrations are vastly higher than the concentrations of glyphosate or possible surfactant present (if any) in incoming milk.
678	Gerlach H. et al.	CA 6.4	2014	Oral application of charcoal and humic acids to dairy cows influences Clostridium botulinum blood serum antibody level and glyphosate excretion in urine.	Journal of Clinical Toxicology (2014), Vol. 4, No. 2, pp. 186	5.4.1 case c) Relevance cannot be determined: Potential effects to gut microbes are not part of the EU risk assessments. Suitable scientific approaches to assess effects are not specified, thus relevance of the effects remained unclear. Additionally there significant difficiencies (lack of control group, treatments). Glyphosate concentrations in urine would be highly impacted by urine volume which is affected by milk production and environmental temperature. Interestingly, aerobes from feces are tested and ruminants rely on strict anaerobes in the rumen and colon.
679	Good P.	CA 5.8.2	2018	Evidence the U.S. autism epidemic initiated by acetaminophen (Tylenol) is aggravated by oral antibiotic amoxicillin/clavulanate (Augmentin) and now exponentially by herbicide glyphosate (Roundup).	Clinical nutrition ESPEN (2018), Vol. 23, pp. 171	5.4.1 case c) Relevance cannot be determined: Potential effects to gut microbes are not part of the EU risk assessments. Suitable scientific approaches to assess effects are not specified, thus relevance of the effects remained unclear. This paper contains no new data. It uses computer algorithms to make associations that are not proved. It claims that glyphosate impacts methionine and tryptophan and ignores that these amino acids are not only essential for the human diet but that microbially derived amino acids are only available via coprophagy.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point No.)	Year	Title	Source	Justification
680	Kruger M. et al.	CA 5.8	2013	Glyphosate suppresses the antagonistic effect of Enterococcus spp. on Clostridium botulinum.	Anaerobe (2013), Vol. 20, pp. 74	5.4.1 case c) Relevance cannot be determined: Potential effects to gut microbes are not part of the EU risk assessments. Suitable scientific approaches to assess effects are not specified, thus relevance of the effects remained unclear. Moreover, the doses used in this study are not justified and are unrealistically high. Cultures are batch culture and it is unclear if conditions are to get values in growing phase. Comparisons between glyphosate and Roundup are completely different so they cannot be compared.
681	Lozano V. L. et al.	CA 5.8.2	2018	Sex-dependent impact of Roundup on the rat gut microbiome.	Toxicology reports (2018), Vol. 5, pp. 96	5.4.1 case c) Relevance cannot be determined: Potential effects to gut microbes are not part of the EU risk assessments. Suitable scientific approaches to assess effects are not specified, thus relevance of the effects remained unclear. This study has a number of issues related to design: Rats are at the end of their life when feces were sampled. It is not clear of feces were sampled pre- or post mortem. Results are confounded by advanced age or even tumor status of these rats, predominantly mammary. The smaller than expected number of phyla may be related to age of the rats. Short-term responses are not surprising: cells in direct contact with a substance in a test tube (liquid medium) will respond differently than cells exposed to that same substance within their natural environment. So in vitro data usually show cells have a greater sensitivity to the substance than in vivo data. And within the intestinal environment there is much to dilute, diminish or mask the substance's effect. This diminished effect in vivo has been documented repeatedly for a large number of test substances.
682	Mao Q. et al.	CA 5.8.2	2018	The Ramazzini Institute 13-week pilot study on glyphosate and Roundup administered at human-equivalent dose to Sprague Dawley rats: effects on the microbiome.	Environmental Health (2018), Vol. 29, No. 17, pp 50	5.4.1 case c) Relevance cannot be determined: Potential effects to gut microbes are not part of the EU risk assessments. Suitable scientific approaches to assess effects are not specified, thus relevance of the effects remained unclear. In this publication there was no clinical evidence of alterations in activity or behavior in pups. Body weight, water and feed consumption both in dams and pups were no different across the groups. Litter sizes were fully comparable among groups. To identify changes in microbes with multiple analyses in groups of animals is not unexpected and not necessarily indicative of a specific effect of the active substance. Changes within all rats due to maturation are greater than the differences between treatment groups. Moreover there are several points limiting the significance of the results: 1) information to calculate dose is not in the paper and seems intentional, 2) ADI is not the same as exposure which averages 1% of the ADI, and clinical signs were by definition not observed at the NOAEL which is 100-fold greater than the ADI. Animals in these toxicity studies had gut microbes, 3) Claims of exposure via milk are unfounded. The statistical analysis results in some differences but they do not put these changes into the context of whether they are normal.

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point No.)	Year	Title	Source	Justification
683	Motta E. V. S. et al.	CA 8.3.1.2	2018	Glyphosate perturbs the gut microbiota of honey bees.	Proceedings of the National Academy of Sciences of the United States of America (2018), Vol. 115, No. 41, pp. 10305	5.4.1 case c) Relevance cannot be determined: Potential effects to gut microbes are not part of the EU risk assessments. Suitable scientific approaches to assess effects are not specified, thus relevance of the effects remained unclear. This papers describes exposure of bees to glyphosate and its impact on gut microbiota.
684	Nielsen L. N. c. r. et al.	CA 6.4	2017	Glyphosate has limited short-term effects on commensal bacterial community composition in the gut environment due to sufficient aromatic amino acid levels	Environmental pollution (2018), Vol. 233, pp. 364	5.4.1 case c) Relevance cannot be determined: Potential effects to gut microbes are not part of the EU risk assessments. Suitable scientific approaches to assess effects are not specified, thus relevance of the effects remained unclear. This study shows that aromatic amino acids in culture conditions can negate impact on gut microbes from glyphosate because microbes with sensitive EPSPS can get these amino acids from the media.
685	Riede S. et al.	CA 6.4	2016	Investigations on the possible impact of a glyphosate-containing herbicide on ruminal metabolism and bacteria in vitro by means of the 'Rumen Simulation Technique'.	Journal of applied microbiology (2016), Vol. 121, No. 3, pp. 644	5.4.1 case c) Relevance cannot be determined: Potential effects to gut microbes are not part of the EU risk assessments. Suitable scientific approaches to assess effects are not specified, thus relevance of the effects remained unclear. In this study a system was developed for studying ruminal organisms that is dynamic, used mixed population of microbes, and is periodically fed with removal of waste products. There were no impacts of glyphosate formulation to this system.
686	Schrodl W. et al.	CA 6.4	2014	Possible effects of glyphosate on Mucorales abundance in the rumen of dairy cows in Germany.	Current microbiology (2014), Vol. 69, No. 6, pp. 817	5.4.1 case c) Relevance cannot be determined: Potential effects to gut microbes are not part of the EU risk assessments. Suitable scientific approaches to assess effects are not specified, thus relevance of the effects remained unclear. Methodological shortcomings of the approaches used reduce the significance of the results (rumen fungi are stricly anaerobic, but they use aerobic cultures; 2) spot-urine concentrations are highly affected by the level of milk production 3) the ELISA is not validated and the LOD ws not used, no validation is described for other assays.
687	Shehata A. A. et al.	CA 6.4	2014	Neutralization of the antimicrobial effect of glyphosate by humic acid in vitro.	Chemosphere (2014), Vol. 104, pp. 258	5.4.1 case c) Relevance cannot be determined: Potential effects to gut microbes are not part of the EU risk assessments. Suitable scientific approaches to assess effects are not specified, thus relevance of the effects remained unclear. In the absence of a suitable dossier datapoint it was allocated to point CA 6.4 as it concerns livestock. However, it is important to note that it is not a residue study and does not provide any data on the transfer of residues from feed to food of animal origin.
688	Shehata A. A. et al.	CA 6.4	2013	The effect of glyphosate on potential pathogens and beneficial members of poultry microbiota in vitro.	Current microbiology (2013), Vol. 66, No. 4, pp. 350	5.4.1 case c) Relevance cannot be determined: Potential effects to gut microbes are not part of the EU risk assessments. Suitable scientific approaches to assess effects are not specified, thus relevance of the effects remained unclear. The publication does not provide new information (potential effects on microorganims with sensitive EPSPS are well known) and real world conditions of the gut are not replicated (study conducted on minimal media; microorganisms exposed to extremely high doses of glyphosate (1000x); aged cultures inducing additional stress).

No	Author(s)	Data requirement (indicated by the corresponding CA / CP data point No.)	Year	Title	Source	Justification
689	Vicini J. L. et al.	CA 6.4	2019	Glyphosate in livestock: feed residues and animal health.	Journal of animal science (2019), Vol. 97, No. 11, pp. 4509	5.4.1 case c) Relevance cannot be determined: Potential effects to gut microbes are not part of the EU risk assessments. Suitable scientific approaches to assess effects are not specified, thus relevance of the effects remained unclear. Review article.
690	Yang X. et al.	CA 8.2.8	2019	Effects of the glyphosate-based herbicide roundup on the survival, immune response, digestive activities and gut microbiota of the Chinese mitten crab, Eriocheir sinensis	Aquatic toxicology (2019), Vol. 214, pp. 105243	5.4.1 case c) Relevance cannot be determined: Potential effects to gut microbes are not part of the EU risk assessments. Suitable scientific approaches to assess effects are not specified, thus relevance of the effects remained unclear. This study uses a high dose of roundup formulation. The surfactants in Roundup are known to be toxic to aquatic animals. This publication indicates a potentially significant decline in survivial due to Roundup. Therefore, results obtained for other endpoints beyond survival may be secondary to known toxicity of the surfactants.

Table 38: Articles excluded after detailed assessment (i.e. not relevant): sorted by technical section (and by author)

No	Technical section	Author(s)	Year	Title	Source	Reason for not including publication in dossier (based on relevance and reliability criteria)
691	Ecotoxicology	Abalaka M. E. et al.	2015	Effects of pesticides on the micro-flora of loamy soil obtained from biological garden, federal university of technology, minna, Nigeria	Advance in Agriculture and Biology (2015), Vol. 4, No. 3, pp. 106-113	Presented data cannot be related to an EU level ANNEX I risk assessment (microbial population study).
692	Ecotoxicology	Abdulkareem S. I. et al.	2014	Effect of lethal and sub- lethal concentrations of glyphosate on some biochemical parameters and growth responses of African catfish (Clarias gariepinus).	Egyptian Academic Journal of Biological Sciences B Zoology (2014), Vol. 6, No. 2, pp. 47-54	Endpoints are not relatable to an EU level risk assessment. No information provided on the levels of exposure presented.
693	Ecotoxicology	Abraham J. et al.	2018	Commercially formulated glyphosate can kill non-target pollinator bees under laboratory conditions.	Entomologia Experimentalis et Applicata (2018), Vol. 166, No. 8, pp. 695-702	The study was conducted using Sunphosate 360 SL, which is not the representative formulation for the EU renewal at Annex I.
694	Ecotoxicology	Achiorno C. L. et al.	2018	Susceptibility of Chordodes nobilii (Gordiida, Nematomorpha) to three pesticides: Influence of the water used for dilution on endpoints in an ecotoxicity bioassay.	Environmental pollution (2018), Vol. 242, No. Pt B, pp. 1427-1435	This paper describes the conduct of aquatic toxicity assays using naturally collected waters from the countries of interest. Infection rate of hosts was also assessed as an endpoint. Roundup that contains POEA was also used in the study. This surfactant is not in the representative formulation for the Annex I renewal.
695	Ecotoxicology	Ada F. B. et al.	2013	Ganado-hepato-somatic index of Oreochromis niloticus sub adults exposed to some herbicides	International Journal of Aquaculture (2013), Vol. 3, No. 11	Endpoints based on gonadosomatic and hepatosomatic indeces are not used in the EU level ecotoxicological risk assessment for Annex I renewal.
696	Ecotoxicology	Afrifa A. A. et al.	2010	The effects of benomyl and glyphosate treated plant litter on nitrogen mineralization in mollisols.	West African Journal of Applied Ecology (2010), Vol. 17, pp. 143-152	In this study both glyphosate and a fungicide product are applied simultaneously to tomato plants. As this assesses combined effects this study is not relevant to the renewal of glyphosate.
697	Ecotoxicology	Agostini M. G. et al.	2020	Pesticides in the real world: The consequences of GMO-based intensive agriculture on native amphibians	Biological Conservation (2020), Vol. 241, Article ID 108355	This paper looks at the impact of mixtures of pestcides rather than single actives. Therefore it is not relevant to the EU renewal of glyphosate at EU level
698	Ecotoxicology	Ahemad M. et al.	2012	Evaluation of plant-growth-promoting activities of rhizobacterium and Pseudomonas putida under herbicide stress	Annals of microbiology (2012), Vol. 62, No. 4, pp. 1531-1540	This paper discusses the impact of herbicides on the plant growth promoting activities of of soil borne bacteria in the root zone. It is not relateable to an EU ecotoxicological risk assessment.
699	Ecotoxicology	Akcha F. et al.	2012	Genotoxicity of diuron and glyphosate in oyster spermatozoa and embryos.	Aquatic toxicology (2012), Vol. 106-107, pp. 104-13	Endpoints derived from genotoxic screening and based upon parameters not considered relevant to EU renewal level assessment.
700	Ecotoxicology	Albajes R. et al.	2011	Two heteropteran predators in relation to weed management in herbicide-tolerant corn.	Biological Control (2011), Vol. 59, No. 1, pp. 30-36	This study was not conducted to a relevant guideline. The test substance was identified as MON 78044, but no other test item information is provided (e.g. purity). The results of the study cannot clearly be related to the glyphosate treatments as multiple products were applied, the work is not GLP compliant and there is insufficient analytical documentation to confirm exposure.
701	Ecotoxicology	Alcantara-de la Cruz R. et al.	2017	Side-effects of pesticides on the generalist endoparasitoid Palmistichus elaeisis (Hymenoptera: Eulophidae).	Scientific Reports (2017), Vol. 7, No. 1, pp. 10064	This paper discusses the influence of trait modified crops sprayed with glyphosate on biological control agents. It is not relateable to an EU level risk assessment.

No	Technical section	Author(s)	Year	Title	Source	Reason for not including publication in dossier (based on relevance and reliability criteria)
702	Ecotoxicology	Al-Daikh E. B. et al.	2016	Effect of glyphosate herbicide on the behavior of soil arthropods in non-organic tomato system	Advance in Agriculture and Biology (2016), Vol. 5, No. 1, pp. 14-19	Endpoints presented cannot be related to an EU level risk assessment for Annex I renewal.
703	Ecotoxicology	Allegrini M. et al.	2015	Ecotoxicological assessment of soil microbial community tolerance to glyphosate.	The Science of the total environment (2015), Vol. 533, pp. 60-8	Novel test design / approach - not relatable to an EU level ecotoxicological risk assessment for Annex I renewal.
704	Ecotoxicology	Allegrini M. et al.	2019	Suppression treatment differentially influences the microbial community and the occurrence of broad host range plasmids in the rhizosphere of the model cover crop Avena sativa L	PloS one (2019), Vol. 14, No. 10, pp. e0223600	Endpoints type is not considered at the EU level risk assessment and cannot be related to levels of exposure anticipated following application according to the proposed GAP.
705	Ecotoxicology	Allegrini M. et al.	2017	Repeated glyphosate exposure induces shifts in nitrifying communities and metabolism of phenylpropanoids	Soil biology & biochemistry (2017), Vol. 105, pp. 206-215	Approaches used cannot be related to an EU level ecotoxicological risk assessment for Annex I renewal.
706	Ecotoxicology	Alleva R. et al.	2016	Organic honey supplementation reverses pesticide-induced genotoxicity by modulating DNA damage response.	Molecular nutrition & food research (2016), Vol. 60, No. 10, pp. 2243-2255	Not related directly to the effects of glyphosate, but to the impact of polyphenols extracted from honey on human epithelial cells. Not relevant to EU level ecotoxicological risk assessment.
707	Ecotoxicology	Al-Sultany D. A. A. et al.	2019	Effects of contaminated water with glyphosate herbicides on the external and behavioral characteristics of common carp, Cyprinus Carpio Linnaeus.	Biochemical and Cellular Archives (2019), Vol. 19, No. 1, pp. 1475-1480	Methodology presented cannot be related to the results provided. Exposure rates cannot be related to the EU level assessment. No glyphosate formulation / product details presented.
708	Ecotoxicology	Amaral M. J. et al.	2012	The usefulness of mesocosms for ecotoxicity testing with lacertid lizards.	Acta Herpetologica (2012), Vol. 7, No. 2, pp. 263-280	Long term monitoring study on lizards maintained in outdoor mesocosms exposed to multiple pestcides. Endpoints cannot be related to an EU level ecotoxicological risk assessment for ANNEX I renewal of glyphosate.
709	Ecotoxicology	Amid C. et al.	2018	Additive effects of the herbicide glyphosate and elevated temperature on the branched coral Acropora formosa in Nha Trang, Vietnam.	Environmental science and pollution research international (2018), Vol. 25, No. 14, pp. 13360-13372	The paper discusses the combined impact of multiple stressors on coral bleaching, when exposed to a formulation that is not the representative formulation for the Annex I renewal. The study compares effects of the product on bleaching of corals at two different temperatures.
710	Ecotoxicology	Anbalagan C. et al.	2013	Use of transgenic GFP reporter strains of the nematode Caenorhabditis elegans to investigate the patterns of stress responses induced by pesticides and by organic extracts from agricultural soils.	Ecotoxicology (2013), Vol. 22, No. 1, pp. 72-85	Study provides information on cellular / molecular level and is not ecotoxicologically relevant study
711	Ecotoxicology	Antoniolli Z. I. et al.	2013	Heavy metal, pesticides and fuels: effect in the population of collembola in the soil. Original Title: Metais pesados, agrotoxicos e combustiveis: efeito na populacao de colembolos no solo.	Ciencia Rural (2013), Vol. 43, No. 6, pp. 992-998	Concerns exposure to a glyphosate formulation (not the representative formulation) in the presence of metals, and in mixtures. It is not relevant to an EU level risk assessment.

No	Technical section	Author(s)	Year	Title	Source	Reason for not including publication in dossier (based on relevance and reliability criteria)
712	Ecotoxicology	Antunes S. C. et al.	2010	Structural effects of the bioavailable fraction of pesticides in soil: suitability of elutriate testing.	Journal of hazardous materials (2010), Vol. 184, No. 1-3, pp. 215-25	The endpoint cannot be ascertained for glyphosate alone as other active substances are also used in the field study. The glyphosate product used (Montana) is not a representative product.
713	Ecotoxicology	Armiliato N. et al.	2014	Changes in ultrastructure and expression of steroidogenic factor-1 in ovaries of zebrafish Danio rerio exposed to glyphosate.	Journal of toxicology and environmental health. Part A (2014), Vol. 77, No. 7, pp. 405-14	Endpoint cannot be related to an EU level risk assessment.
714	Ecotoxicology	Asgari S. M. et al.	2018	Oraganophosphorus pesticides induced enzymological responses in the various tissues of freshwater fish Koi carp (Cyprinus carpio)	European Journal of Zoological Research (2018), Vol. 6, No. 1, pp. 17-24	This study described the Biological impacts on enzyme levels in fish blood, are not used in an EU level ecotoxicological risk assessment.
715	Ecotoxicology	Avigliano L. et al.	2014	Effects of glyphosate on egg incubation, larvae hatching, and ovarian rematuration in the estuarine crab Neohelice granulata	Environmental Toxicology and Chemistry (2014), Vol. 33, no. 8, pp. 1879	Article discusses effects of formulated product on crab development. Endpoints are not relatable to an EU level risk assessment as specific endpoints are not discussed.
716	Ecotoxicology	Avigliano L. et al.	2018	Effects of Glyphosate on Somatic and Ovarian Growth in the Estuarine Crab Neohelice granulata, During the Pre-Reproductive Period	Water, air, and soil pollution (2018), Vol. 229, No. 2, pp. 44	Difficult to relate findings of the study to an EU level ecotoxicology risk assessment as they are based on GSI and HIS values and the different types of oocyte found in the ovaries between exposure groups.
717	Ecotoxicology	Ayanda I. O. et al.	2018	Toxicity of sublethal concentrations of glyphosate and paraquat herbicide in the African catfish (Clarias gariepinus)	International Journal of Agriculture and Biology (2018), Vol. 20, No. 6, pp. 1359-1364	Observations based on enzyme levels are not used in EU level ecotoxicological risk assessment for Annex I renewal purposes.
718	Ecotoxicology	Babalola O. O. et al.	2019	Mortality, teratogenicity and growth inhibition of three glyphosate formulations using Frog Embryo Teratogenesis Assay-Xenopus.	Journal of applied toxicology (2019), Vol. 39, No. 9, pp. 1257-1266.	This paper uses a formulation that is not the representative formulation for the annex I renewal. Study endpoints cannot be related to the EU level risk assessment as the techniques used are not recognised at the EU level.
719	Ecotoxicology	Bach N. C. et al.	2018	Effects of glyphosate and its commercial formulation, Roundup (R) Ultramax, on liver histology of tadpoles of the neotropical frog, Leptodactylus latrans (amphibia: Anura).	Chemosphere (2018), Vol. 202, pp. 289-297	Study conducted using a formulation that is not the representative formulation for the Annex I renewal. Roundup Ultramax is based on MON 78294, which contains a different surfactant system compared to the representative formulation (MON 52276) and therefore the effects of the surfactant cannot be excluded.
720	Ecotoxicology	Baier F. et al.	2016	Non-target effects of a glyphosate-based herbicide on Common toad larvae (Bufo bufo, Amphibia) and associated algae are altered by temperature.	PeerJ (2016), Vol. 4, pp. e2641	Test item used is not the representative formulation relevant to the EU renewal of glyphosate. The article discusses the impact of temperature on toxicity. Studies conducted for EU renewal are standardly conducted at a constant temperature that reflects median temperature in the field. Variable temperature studies are not considered at EU level.
721	Ecotoxicology	Baier F. et al.	2016	Temperature-Dependence of Glyphosate-Based Herbicide's Effects on Egg and Tadpole Growth of Common Toads	Frontiers in Environmental Science (2016), Vol. 4, pp. 51	The study was conducted using Roundup, which contains POEA and the influence of POEA on the achieved results cannot be excluded. The representative formulation for the Annex I renewal does not contain POEA, therefore the findings are not relevant to the renewal risk assessment.

No	Technical section	Author(s)	Year	Title	Source	Reason for not including publication in dossier (based on relevance and reliability criteria)
722	Ecotoxicology	Baker L. F. et al.	2014	The direct and indirect effects of a glyphosate-based herbicide and nutrients on Chironomidae (Diptera) emerging from small wetlands.	Environmental toxicology and chemistry (2014), Vol. 33, No. 9, pp. 2076-85	The formulation used in the article is not relevant to the Annex I renewal, as has a different surfactant system.
723	Ecotoxicology	Banaee M. et al.	2019	Acute exposure to chlorpyrifos and glyphosate induces changes in hemolymph biochemical parameters in the crayfish, Astacus leptodactylus (Eschscholtz, 1823).	Comparative biochemistry and physiology. Toxicology & pharmacology (2019), Vol. 222, pp. 145-155	Endpoints based on biochemical parameters are not relatable to an EU level ecotoxicological risk assessment for Annex I renewal.
724	Ecotoxicology	Bandara K. et al.	2015	Effect of glyphosate-based herbicide, Roundup super(TM) on territory deference of male Oreochromis mossambicus (Osteichthyes, Cichlidae) associated with mating behaviour	Sri Lanka journal of aquatic sciences (2015), Vol. 20, No. 1, pp. 1-10	Formulation tested contains POEA - not relevant to an EU level Annex I ecotoxicological risk assessment for renewal.
725	Ecotoxicology	Barbukho O. V. et al.	2011	Effect of herbicide Roundup on carp spawn viability and possibility for prevention of its toxicity by probiotic preparation BPS-44	Gidrobiologicheskii Zhurnal (2011), Vol. 47, No. 3, pp. 74-79	As Roundup was used in the study which contains surfactants not present in the representative formulation high concentrations were used, and eggs were exposed to both a probiotic and Roundup, this study is not relevant to the renewal of glyphosate.
726	Ecotoxicology	Bawa V. et al.	2018	Toxic effects of glyphosate on common carp (Cyprinus carpio L.) fingerlings.	Agricultural Research Journal (2018), Vol. 55, No. 1, pp. 169-171	The formulation used has a surfactant system that is based on POEA, which is not relevant to the EU representative formulation for the annex I renewal.
727	Ecotoxicology	Behrend J. E. et al.	2018	Contact with a glyphosate-based herbicide has long-term effects on the activity and foraging of an agrobiont wolf spider.	Chemosphere (2018), Vol. 194, pp. 714-721	Study used MON 8709 Buccaneer Plus formulation which contains MON 0818 (based on POEA) and is not used in the representative EU formulation. Therefore findings cannot be related to the risk assessment.
728	Ecotoxicology	Berger G. et al.	2018	How does changing pesticide usage over time affect migrating amphibians: a case study on the use of glyphosate-based herbicides in German agriculture over 20 years.	Frontiers in Environmental Science (2018), Vol. 6, article 6	This paper considers information from multiple sources to assess the impact of herbicides on amphibian populations in Germany over the last 20 years. This is country specific information that cannot be related to an EU level ecotoxicological risk assessment for EU Annex I renewal.
729	Ecotoxicology	Bernal-Rey D. L. et al.	2020	Seasonal variations in the dose-response relationship of acetylcholinesterase activity in freshwater fish exposed to chlorpyrifos and glyphosate.	Ecotoxicology and environmental safety (2020), Vol. 187, pp. 109673	No specific endpoints that are useable in an EU level ecotoxicological risk assessment for Annex I renewal are presented in the paper. It is difficult to relate the observed effects to fish species found in the EU, as these data were collected from wild caught fish collected over a period of time. Impacts for example, of pH on the levels of stress in the system were not considered and may have ultimately contributed to the observed effects.
730	Ecotoxicology	Berthelemy N. J.	2018	Effects of Glyphosate and Roundup on the brine shrimp Artemia franciscana	Integrative and comparative biology (2018), Vol. 58, Supp. 1, pp. E277-E277	This paper is a poster abstract. There is no associated paper. There is insufficient information presented in the poster abstract to establish relevance of the poster to the Annex I renewal.
731	Ecotoxicology	Bhojane N. M. et al.	2018	Individual and combined effect of indoxacarb and glyphosate on biochemical alterations in Japanese quails (Cuturnix Cuturnix Japonica)	Chemical Science Review and Letters (2018), Vol. 7, No. 25, pp. 190-200	Cellular level parameters are discussed in this paper, with endpoints that are not relevant to an Annex I renewal from an ecotoxicological perspective.

No	Technical section	Author(s)	Year	Title	Source	Reason for not including publication in dossier (based on relevance and reliability criteria)
732	Ecotoxicology	Blasco P. M. P. et al.	2018	Comparative study of chronic toxicity of herbicides used in South America using a model of Cyprinus carpio	Environmental Science: An Indian Journal (2018), Vol. 14, No. 5, pp. 175	Formulation used is not the representative formulation for the Annex I renewal.
733	Ecotoxicology	Boily M. et al.	2013	Acetylcholinesterase in honey bees (Apis mellifera) exposed to neonicotinoids, atrazine and glyphosate: laboratory and field experiments.	Environmental science and pollution research international (2013), Vol. 20, No. 8, pp. 5603-14	The test item is the commercial formulation Weathermax 240 which is distributed in Canada. This formulation is not the representative formulation for the Annex I renewal in the EU. In addition, the study does not follow any approved guideline and the investigated effect on acetylcholinesterase cannot be related to the EU level bee ecotoxicological risk assessment for Annex I renewal purposes. The field experiment, conducted in two regions in Québec (Canada) was not conducted under controlled conditions. No analytical verification of glyphosate was provided. Also, the experimental design is only briefly described, with no rationale presented for the selection of exposure concentrations.
734	Ecotoxicology	Bokony V. et al.	2017	Chronic exposure to a glyphosate-based herbicide makes toad larvae more toxic.	Proceedings. Biological sciences (2017), Vol. 284, No. 1858	The article does not report results which can be used for a risk assessment and information is insufficient to transfer values into such determinants.
735	Ecotoxicology	Bonfanti P. et al.	2018	A glyphosate micro-emulsion formulation displays teratogenicity in Xenopus laevis.	Aquatic toxicology (2018), Vol. 195, pp. 103-113	Formulation is not relevant to the EU level renewal of glyphosate.
736	Ecotoxicology	Bonnineau C. et al.	2012	Light history modulates antioxidant and photosynthetic responses of biofilms to both natural (light) and chemical (herbicides) stressors.	Ecotoxicology (2012), Vol. 21, No. 4, pp. 1208-24	Endpoints / findings not relatable to an EU level ecotoxicolgical risk assessment for Annex I renewal.
737	Ecotoxicology	Boscardin J. et al.	2016	Effects of different types of weed control on the ant fauna in Eucalyptus grandis. Original Title: Efeitos de diferentes tipos de controle de plantas infestantes sobre a mirmecofauna em Eucalyptus grandis.	Ciencia Florestal (2016), Vol. 26, No. 1, pp. 21-34	Specific endpoints that could be used in an EU level risk assessment were not presented.
738	Ecotoxicology	Boscardin J. et al.	2014	Relationship between ant communities and environmental quality in Eucalyptus grandis submitted to different weedy species control in the south of Brazil. Original Title: Relacao entre guildas de formigas e a qualidade ambiental em Eucalyptus grandis subme	ENTOMOTROPICA (2014), Vol. 29, No. 3, pp. 173-182	Presented data is not relatable to an EU level risk assessment for EU Annex I level renewal.
739	Ecotoxicology	Boufleuer E. M. S. et al.	2016	Assessment of mortality and reproduction of Daphnia magna subjected to the herbicide glyphosate. Avaliacao da mortalidade e reproducao de Daphnia magna submetida ao herbicida glifosato.	Acta Iguazu (2016), Vol. 5, No. 5, pp. 25-33	Results of a 48 hour Daphnia magna tests treated with glyphosate determined an LC50 of 2.1087 mg/L. A chronic (21 day) study determined effects at 2.1087 mg/L, but no effects were observed at the lower concentrations tested. The study was not conducted to GLP or to an acceptable guideline and there are several short comings in the provided report. The test substance used (Polaris 48%) is a Monsanto Brazil product that is based on

No	Technical section	Author(s)	Year	Title	Source	Reason for not including publication in dossier (based on relevance and reliability criteria)
						the IPA salt of Glyphosate. This product also contains a surfactant that is not relevant to the representative formulation, therefore the observed findings are not considered relevant to the renewal. Furthermore the influence of the co-formulant on the results cannot be excluded. There are no analytical data reported and so the exposure cannot be confirmed.
740	Ecotoxicology	Boutin C. et al.	2010	Measuring variability in phytotoxicity testing using crop and wild plant species.	Environmental toxicology and chemistry (2010), Vol. 29, No. 2, pp. 327-37	Glyphosate product + surfactant (Agral 90) was used in the study which compared this with an atrazine product to look at the phytotoxicity to plant species. Treatments ranged from 21 to 2277 g ai/ha for glyphosate product, applied in a greenhouse. Although an IC25 could be obtained from the article, the results indicate great variability between the plant species tested and external factors. Therefore, it is not possible to extrapolate from this data for use in the regulatory risk assessment in the glyphosate renewal.
741	Ecotoxicology	Boutin C. et al.	2019	Effects of sub-lethal doses of herbicides on the competitive interactions between two non-target plants: Centaurea cyanus L. and Silene noctiflora L.	Environmental toxicology and chemistry (2019), Vol . 8, No. 9, pp. 2053-2064	Observation not linked to glyphosate or its metabolites. In this case the observations were concerning competition in the growth of plants under different pesticide stress regimes and at different planting densities. Endpoints considered relevant for EU level risk assessment were not presented.
742	Ecotoxicology	Boutin C. et al.	2014	Herbicide impact on non-target plant reproduction: What are the toxicological and ecological implications?	ENVIRONMENTAL POLLUTION (2014), Vol. 185, pp. 295-306	This paper describes the results of a set of long term monitoring studies that were used to investigate the impact of a range of herbicides on the reproductive output of plants. Whilst these data are interesting in developing the testing paradigm for plants, the data presented cannot be related to an EU level risk assessment for Annex I renewal.
743	Ecotoxicology	Bridi D. et al.	2017	Glyphosate and Roundup(®) alter morphology and behavior in zebrafish.	Toxicology (20171), Vol. 392, pp. 32-39	The article does not report results, which can be used for risk assessment and information is insufficient to transfer values into such determinants.
744	Ecotoxicology	Bruckner A. et al.	2019	Foliar Roundup application has minor effects on the compositional and functional diversity of soil microorganisms in a short-term greenhouse experiment.	Ecotoxicology and environmental safety (2019), Vol. 174, pp. 506-513	Formulation used is not the representative formulation for the Annex I renewal.
745	Ecotoxicology	Buch A. C. et al.	2013	Toxicity of three pesticides commonly used in Brazil to Pontoscolex corethrurus (Mueller, 1857) and Eisenia andrei (Bouche, 1972)	Applied soil ecology (2013), Vol. 69, pp. 32-38	The formulation used is not the representative formulation for the Annex I.
746	Ecotoxicology	Buck J. C. et al.	2015	Effects of pesticide mixtures on host-pathogen dynamics of the amphibian chytrid fungus	PLoS One (2015), Vol. 10, No. 7, pp. e0132832/1	Effects on host pathogen dynamics is not a data requirement for the Annex I submission, Therefore, the findings cannot be related to the ecotoxicological risk assessment.
747	Ecotoxicology	Burella P. M. et al.	2018	Oxidative damage and antioxidant defense in Caiman latirostris (Broad-snouted caiman) exposed in ovo to pesticide formulations.	Ecotoxicology and environmental safety (2018), Vol. 161, pp. 437-443	Formulation used is not the representative formulation for the Annex I renewal.

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748	Ecotoxicology	Canosa I. S. et al.	2018	Ovarian growth impairment after chronic exposure to Roundup Ultramax® in the estuarine crab Neohelice granulata.	Environmental science and pollution research international (2018), Vol. 25, No. 2, pp. 1568-1575	Roundup Ultramax is the formulation used which contains 600 g/L a.e. This is however, not the representative formulation for the renewal.
749	Ecotoxicology	Canosa I. S. et al.	2019	Imbalances in the male reproductive function of the estuarine crab Neohelicegranulata, caused by glyphosate.	Ecotoxicology and environmental safety (2019), Vol. 182, pp. 109405	The test substance is a 400 g a.i./L formulation that is not the representative formulation for the Annex I renewal.
750	Ecotoxicology	Carmo E. L. et al.	2010	Pesticide selectivity for the insect egg parasitoid Telenomus remus	BioControl (2010), Vol. 55, No. 4, pp. 455-464	An IOBC guideline criteria was used for classification of three different glyphosate products used as test substances alongside several other insecticides and herbicides in this comparison lab study. Endpoints generated are not relevant to the renewal of glyphosate.
751	Ecotoxicology	Carpenter J. K. et al.	2016	The effect of two glyphosate formulations on a small, diurnal lizard (Oligosoma polychroma).	Ecotoxicology (2016), Vol. 25, No. 3, pp. 548-54	Contains POEA surfactant, therefore is not relevant to EU renewal.
752	Ecotoxicology	Carranza C. S. et al.	2014	Influence of the pesticides glyphosate, chlorpyrifos and atrazine on growth parameters of nonochratoxigenic Aspergillus section Nigri strains isolated from agricultural soils.	Journal of environmental science and health. Part. B, Pesticides, food contaminants, and agricultural wastes (2014), Vol. 49, No. 10, pp. 747-55	Comparative growth rates of Apsergillus niger following application of different pesticides. Endpoints are not relatable to an EU level Annex I ecotoxicological risk assessment.
753	Ecotoxicology	Castilho A. F. et al.	2016	The impact of glyphosate herbicides on soil microbial activity from the Carajas National Forest.	Revista de Ciencias Agrarias / Amazonian Journal of Agricultural and Environmental Sciences (2016), Vol. 59, No. 3, pp. 302-309	A long term monitoring study using multiple Roundup formulations was performed. Roundup original contains POEA as a surfactant and is not therefore relevant. The other Roundup formulations differ in their composition to the representative formulation for the Annex I renewal.
754	Ecotoxicology	Chen L. et al.	2012	The combined effects of UV-B radiation and herbicides on photosynthesis, antioxidant enzymes and DNA damage in two bloom-forming cyanobacteria.	Ecotoxicology and environmental safety (2012), Vol. 80, pp. 224-30	Paper discusses the effect of glyphosate at different UV-B levels. Direct effects are not discussed. Not relatable to EU level risk assessment.
755	Ecotoxicology	Choi C. J. et al.	2012	Rapid effects of diverse toxic water pollutants on chlorophyll a fluorescence: variable responses among freshwater microalgae.	Water research (2012), Vol. 46, No. 8, pp. 2615-26	This article looks at effects of glyphosate + other compounds on the PSII system, determiningeffects to Chlorophyll A levels using fluorescence. Endpoints were generated using a novel approach that is not considered relevant to an EU level ecotoxicological risk assessment.
756	Ecotoxicology	Zanuncio C. J. et al.	2018	Glyphosate-based herbicides toxicity on life history parameters of zoophytophagous Podisus nigrispinus (Heteroptera: Pentatomidae)	Ecotoxicology and environmental safety (2018), Vol. 147, pp. 245-250	Based on an exposure situation where soldier bugs ere exposed on glyphosate resistant crops, which are not relevant to the EU exposure situation.
757	Ecotoxicology	Condrosari P. et al.	2018	Growth inhibition test of glyphosate herbicide for glyphosate-degrading-bacteria screening	International Journal of ChemTech Research (2018), Vol. 11, No. 5, pp. 240-248	The paper describes a screening test for establishing bacterial populations as tools for remediation of soils. The presented endpoints are not relatable to an EU level risk assessment from an ecotoxicological perspective.

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758	Ecotoxicology	Costa R. N. et al.	2016	Measuring the impacts of Roundup Original® on fluctuating asymmetry and mortality in a Neotropical tadpole	Hydrobiologia (2016), Vol. 765, No. 1, pp. 85-96	Formulation tested contains POEA which is not relevant in the EU, as the representative formulation does not contain POEA.
759	Ecotoxicology	Cuhra M. et al.	2013	Clone- and age-dependent toxicity of a glyphosate commercial formulation and its active ingredient in Daphnia magna.	Ecotoxicology (2013), Vol. 22, No. 2, pp. 251-62	Study was performed according to methods adapted from the ISO, US EPA and the OECD Testing. Juveniles > 24 hour old are not the approach advised in any of the test guidelines, so the acute results for the aged cohort studies cannot be related to an EU level risk assessment. Concerning the chronic exposure assay, this approach was modified from the guidelines stated above, extending beyond the 21 day duration of the guideline test. Validity criteria for the acute and chronic test were not stated. Details of the methods used to prepare the test media are not reported. Biological data are not reported for all age groups, so the data presented in the plots cannot be confirmed. The test organisms used in the tests were from different natural sources and poorly characterised as it would be needed to draw a regulatory relevant conclusion from the reported results. Furthermore and more critically, analytical dose confirmation of media in the vessels was not performed, so exposure cannot be confirmed. Due to the test materials not being the representative formulation for the EU renewal, the study is not relevant to the EU level Annex I ecotoxicology risk assessment.
760	Ecotoxicology	Currie Z. et al.	2015	Toxicity of Cuspide 480SL® spray mixture formulation of glyphosate to aquatic organisms.	Environmental toxicology and chemistry (2015), Vol. 34, No. 5, pp. 1178-84	The main focus of the article was a hazard assessment of two glyphosate formulations not available in Europe and the associated co-formulants. The study, measured toxicity values and calculated exposure values for South America. Due to the test materials not being the representative formulation for the EU renewal, the study is not relevant to the EU level Annex I ecotoxicology risk assessment.
761	Ecotoxicology	da Costa Chaulet F. et al.	2019	Glyphosate- and Fipronil-Based Agrochemicals and Their Mixtures Change Zebrafish Behavior.	Archives of environmental contamination and toxicology (2019), Vol. 77, No. 3, pp. 443-451	This paper describes behavioural differences in zebra fish when exposed to either glyphosate or fipronil. No endpoint data presented could be used in an EU level for Annex I ecotoxicological risk assessment. Aversion / avoidance testing is not an EU level ecotoxicology risk assessment data requirement.
762	Ecotoxicology	da Rosa J. G. S. et al.	2016	Fish Aversion and Attraction to Selected Agrichemicals.	Archives of environmental contamination and toxicology (2016), Vol. 71, No. 3, pp. 415-22	Paper describes a novel fish avoidance study which is not considered relevant to an EU level risk assessment.
763	Ecotoxicology	da Silva G. S. et al.	2019	Gene expression, genotoxicity, and physiological responses in an Amazonian fish, Colossoma macropomum (CUVIER 1818), exposed to Roundup and subsequent acute hypoxia	Comparative Biochemistry and Physiology, Part C: Toxicology & Pharmacology (2019), Vol. 222, pp. 49-58	The formulation used is based on MON 2139, which contains POEA. POEA surfactants are not present in the representative formulation (MON 52276) being used for the Annex I renewal.
764	Ecotoxicology	da Silva R. A. et al.	2013	Compatibility of conventional agrochemicals used in rice crops with the entomopathogenic fungus Metarhizium anisopliae.	Scientia Agricola (2013), Vol. 70, No. 3, pp. 152-160	This paper presents the results of an agrochemical mixture study to entompathogenic fungus. As the study was performed using a mixture the appropriate endpoints for glyphosate cannot be determined.

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765	Ecotoxicology	Dalton R. L. et al.	2010	Comparison of the effects of glyphosate and atrazine herbicides on nontarget plants grown singly and in microcosms.	Environmental toxicology and chemistry (2010), Vol. 29, No. 10, pp. 2304-15	A study to look at the effects of Glyphosate (Roundup original + surfactant, 356 g/L) on single potted plant species compared with a microcosm. Based on relevant guidelines, six doses of up to 2136 g ai/ha label rate. IC25 results generated were used to compare test systems, however it is not possible to extrapolate to the risk assessments in the glyphosate renewal. Additionally, due to the test materials not being the representative formulation for the EU renewal, the study is not relevant to the EU level Annex I ecotoxicology risk assessment.
766	Ecotoxicology	de Brito Rodrigues L. et al.	2017	Ecotoxicological assessment of glyphosate-based herbicides: Effects on different organisms.	Environmental toxicology and chemistry (2017), Vol. 36, No. 7, pp. 1755-1763	The aim of the work presented in this paper was to evaluate the toxicity and potential effects of two glyphosate formulations on seed germination, brine shrimp and zebra fish larvae. The selected test species and design are not relatable to an EU level ecotoxicological risk assessment, as a USEPA approach was followed for a mixed consideration of diverse test species. The report provides insufficient description of study design and no specific rationale was cited for the formulations selected. Some methodology was performed according to OECD guidelines, however validity criteria were not evaluated and no analytical verification was performed.
767	Ecotoxicology	de Moraes C. P. et al.	2019	Hormetic effect of glyphosate on Urochloa decumbens plants.	Journal of environmental science and health. Part. B, Pesticides, food contaminants, and agricultural wastes (2019), Vol. 55, No. 4, pp. 376-381	This paper presents a summary and review of hormetic growth response papers. No supportive data was presented to support stated endpoints.
768	Ecotoxicology	de Saraiva A. S. et al.	2016	Glyphosate sub-lethal toxicity to non-target organisms occurring in Jatropha curcas plantations in Brazil.	Experimental & applied acarology (2016), Vol. 70, No. 2, pp. 179-87	Endpoints not relatable to an EU level ecotoxicological risk assessment.
769	Ecotoxicology	de Sousa Saraiva A. et al.	2015	Weed management practices affect the diversity and relative abundance of physic nut mites.	Experimental & applied acarology (2015), Vol. 65, No. 3, pp. 359-75	The paper describes a long term monitoring programme looking at weed management practices and their impact on mite species in a particular region of Brazil, that cannot be related to an EU level risk assessment.
770	Ecotoxicology	De Souza Filho J. et al.	2013	Mutagenicity and genotoxicity in gill erythrocyte cells of Poecilia reticulata exposed to a glyphosate formulation.	Bulletin of environmental contamination and toxicology (2013), Vol. 91, No. 5, pp. 583-7	Methods and endpoints are not relevant to an EU level ecotoxicology assessment.
771	Ecotoxicology	De Stefano L. G. et al.	2018	Comparative impact of two glyphosate-based formulations in interaction with Limnoperna fortunei on freshwater phytoplankton	Ecological indicators (2018), Vol. 85, pp. 575-584	This paper looks at the interaction of herbicide formulations in conjunction with the presence of mussels on the development of periphyton and phytoplankton communities. As the effects cannot be related directly to the single active substance, this paper is not considered relevant for the EU level Ecotoxicological risk assessment for Annex I renewal.
772	Ecotoxicology	Debski H. et al.	2018	Effects of glyphosate and fluazifop-P-butyl on flavonoids content and growth of common buckwheat (Fagopyrum esculentum Moench)	Fresenius Environmental Bulletin (2018), Vol. 27, No. 1, pp. 91-97	Cellular level parameters discussed in the paper, with endpoints that are not relevant to an Annex I renewal from an ecotoxicological perspective.

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773	Ecotoxicology	Debski H. et al.	2018	Comparison of the response of seedlings of common buckwheat (Fagopyrum esculentum Moench) to glyphosate applied to the shoot or to the root zone.	Acta Agrobotanica (2018), Vol. 71, No. 1, pp. Article No.: 1730	Unable to establish the exposure rates used in the three different tests. mMolar solutions were prepared, but no attempt has been made to confirm dosing and no analysis performed. Endpoints are therefore not relevant to an EU level risk assessment from an ecotoxicological perspective.
774	Ecotoxicology	Di Fiori E. et al.	2012	Impact of the invasive mussel Limnoperna fortunei on glyphosate concentration in water.	Ecotoxicology and environmental safety (2012), Vol. 81, pp. 106-13	Paper describes the use of golden mussels for removal of glyphosate from the water column. Endpoints presented cannot be be used in EU level Annex I renewal risk assessment.
775	Ecotoxicology	Dinehart S. K. et al.	2010	Acute and chronic toxicity of Roundup Weathermax and Ignite 280 SL to larval Spea multiplicata and S. bombifrons from the Southern High Plains, USA.	Environmental pollution (2010), Vol. 158, No. 8, pp. 2610-7	Roundup Weathermax was used as a test item.The composition differs to that of the representative formulation for the Annex I renewal (MON 52276), and thus the results cannot be applied to the risk assessment for the EU renewal. Due to the test material not being the representative formulation for the EU renewal, the study is not relevant to the EU level Annex I ecotoxicology risk assessment.
776	Ecotoxicology	do Carmo E. L. et al.	2010	SELECTIVITY OF PESTICIDES USED IN SOYBEAN CROPS TO TRICHOGRAMMA PRETIOSUM RILEY, 1879 (HYMENOPTERA: TRICHOGRAMMATIDAE) PUPAE. Original Title: SELETIVIDADE DE PRODUTOS FITOSSANITARIOS UTILIZADOS NA CULTURA DA SOJA PARA PUPAS DE TRICHOGRAMMA PRETIOSUM RILEY	Arquivos do Instituto Biologico Sao Paulo (2010), Vol. 77, No. 2, pp. 282-290	Effects on parasitoid wasps via exposure of parasitised eggs which were immersed for 5 sec in test solutions. However, this is no adequate route of exposure and the content of active ingredient per area is unclear. Therefore the biological results cannot be attributed to a specific test concentration.
777	Ecotoxicology	Dos Santos A. P. R. et al.	2017	A glyphosate-based herbicide induces histomorphological and protein expression changes in the liver of the female guppy Poecilia reticulata.	Chemosphere (2017), Vol. 168, pp. 933-943	The paper attempts to establish a proteomic method for detecting sub-lethal impacts of chemicals on fish. This is not relevant for risk assessment in the EU, where growth and reproductive parameters achieved in higher tier fish testing are considered. The formulation used is also not the representative formulation for the annex I renewal.
778	Ecotoxicology	Dos Santos Teixeira J. M. et al.	2018	Acute toxicity and effects of Roundup Original® on pintado da Amazonia.	Environmental science and pollution research international (2018), Vol. 25, No. 25, pp. 25383-25389	Endpoints presented were for a formulation that is not the representative formulation for the Annex I renewal.
779	Ecotoxicology	Druart C. et al.	2012	Landsnail eggs bioassays: A new tool to assess embryotoxicity of contaminants in the solid, liquid or gaseous phase of soil	Applied soil ecology (2012), Vol. 53, pp. 56-64	Endpoints are not applicable to EU level ecotoxicology risk assessment. Approach described is novel and not validated.
780	Ecotoxicology	Druille M. et al.	2015	Glyphosate vulnerability explains changes in root-symbionts propagules viability in pampean grasslands	Agriculture, ecosystems & environment (2015), Vol. 202, pp. 48-55	Findings cannot be related to an EU level ecotoxicological risk assessment.
781	Ecotoxicology	Druille M. et al.	2013	Arbuscular mycorrhizal fungi are directly and indirectly affected by glyphosate application	Applied soil ecology (2013), Vol. 72, pp. 143-149	Describes an experiment to establish if fungal hyphae associated with plant roots are affected by glyphosate. Endpoints achieved not relatable to EU level risk assessment. Exposure rates cannot be determined from the paper.

No	Technical section	Author(s)	Year	Title	Source	Reason for not including publication in dossier (based on relevance and reliability criteria)
782	Ecotoxicology	Du X. et al.	2012	Effects of eight herbicides on seed germination and seedling growth of Scutellaria baicalensis Georg	Xibei Nongye Xuebao (2012), Vol. 21, No. 4, pp. 202-206	The formulation (Glyphosate (Baron®) 48% SL (Elhelb), is not the representative formulation for the EU Annex I renewal. The study was not conducted to GLP and/or according to a recognized test guideline and there are no validity criteria presented. The authors state that Roundup had no effect on the germination of Scutellaria baicalensis Georgi seeds in laboratory petri dish test but inhibited the growth of Scutellaria baicalensis Georgi seedlings. However, given the lack of standard guidelines and important material and application methods, in conjunction with insufficiently reported test conditions and biological data, no useful endpoint for the risk assessment can be derived.
783	Ecotoxicology	Dumitru G. et al.	2019	Effect of glyphosate herbicide on some hematological and biochemical parameters in Carassius auratus L	Revista de Chimie (2019), Vol. 70, No. 2, pp. 518-521	Sub-lethal effects on blood chemistry parameters are not relevant to an ecotoxicological risk assessment for the EU level renewal of glyphosate. On review of the report, the formulation was also a 48% a.e. content, with reasons for the observed effects related to POEA in the formulation described in the results. The representative formulation does not contain POEA, therefore results not relevant for the EU.
784	Ecotoxicology	Edge C. B. et al.	2013	Laboratory and field exposure of two species of juvenile amphibians to a glyphosate-based herbicide and Batrachochytrium dendrobatidis.	The Science of the total environment (2013), Vol. 444, pp. 145-52	Formulation used is not the representative formulation for the Annex I renewal. Effects from co-formulants cannot be excluded.
785	Ecotoxicology	Edge C. B. et al.	2012	A silviculture application of the glyphosate-based herbicide VisionMAX to wetlands has limited direct effects on amphibian larvae.	Environmental toxicology and chemistry (2012), Vol. 31, No. 10, pp. 2375-83	The formulation used is not the representative formulation for the Annex I renewal. Effects from co-formulants cannot be excluded.
786	Ecotoxicology	Edge C. et al.	2014	Variation in amphibian response to two formulations of glyphosate-based herbicides.	Environmental toxicology and chemistry (2014), Vol. 33, No. 11, pp. 2628-32	Roundup WeatherMax and Roundup Weed and Grass Control, which are non EU representative glyphosate formulated products were used as the test substances. Prior exposure history to other chemicals and other organisms within their natural environment was unknown. Several limitations were observed within the study including lack of exposure history of the local organisms, inability to attribute the results entirely to the test substance, inability to develop a dose-response relationship or derive end-points within the study, the analytical approach and verification was lacking, and the study was not conducted according to a standard guideline.

No	Technical section	Author(s)	Year	Title	Source	Reason for not including publication in dossier (based on relevance and reliability criteria)
787	Ecotoxicology	Edge C. et al.	2014	The response of amphibian larvae to exposure to a glyphosate-based herbicide (Roundup WeatherMax) and nutrient enrichment in an ecosystem experiment.	Ecotoxicology and environmental safety (2014), Vol. 109, pp. 124-32	WeatherMax, a non EU representative glyphosate formulated product was used as the test substance. Prior exposure history of the egg masses to other chemicals as well as other organisms within the wetlands was unknown as the study was conducted in a natural environment. Several limitations were observed within the study including lack of exposure history of the local organisms, inability to attribute the results entirely to the test substance, inability to develop a dose-response relationship within the study. Testing conditions were neither documented nor controlled, and representativeness of the test conditions were unknown as the study was not conducted according to a standard guideline.
788	Ecotoxicology	El Sebai O. A. et al.	2012	Side-effect of certain herbicides on egg parasitoid Trichogramma evanescens (West.) (Hymenoptera: Trichogrammatidae)	Academic Journal of Entomology (2012), Vol. 5, No. 1, pp. 1-10	The aim of the study was to compare the toxicity of four different commercially available herbicidal products to T. evanescens. Glyphosate was classified as harmless to T. evanescens wasps. The study was not conducted to a guideline or to GLP and the study design lacks some details compared with relevant guidelines. The test concentrations are based on nominal and no analytical verifications of test item concentrations were conducted. Only some details of the statistical analysis are reported. As the study is based on a glyphosate product, the toxicity of glyphosate active substance alone is unknown and therefore endpoints generated from this study are not quantifiable. Due to the test materials not being the representative formulation for the EU renewal, the study is not relevant to the EU level Annex I ecotoxicology risk assessment.
789	Ecotoxicology	Enemaduku A. M. et al.	2015	Effects of pesticides on the micro-flora of loamy soil obtained from Biological Garden, Federal University of Technology, Minna, Nigeria	Journal of Scientific and Engineering Research (2015), Vol. 2, No. 4, pp. 55-63	This monitoring study based on a Nigerian soil type, uses endpoints that are not applicable to an EU level ecotoxicological risk assessment.
790	Ecotoxicology	Erban T. et al.	2017	Detection of the desiccant and plant growth regulator chlormequat in honeybees and comb pollen.	Veterinarni Medicina (2017), Vol. 62, No. 11, pp. 596-603	Investigation of samples from hives exhibiting poisoning. Analyzed many pesticides (including glyphosate). No glyphosate detections reported.
791	Ecotoxicology	Faghani M.	2018	Effect of glyphosate on honey bee (Apis Mellifera) performance	Arthropods (2018), Vol. 7, No. 3, pp. 77-81	Presents no data that can be used in an EU based risk assessment.
792	Ecotoxicology	Fai P. B. A. et al.	2015	Potential of the microbial assay for risk assessment (MARA) for assessing ecotoxicological effects of herbicides to non-target organisms.	Ecotoxicology (2015), Vol. 24, No. 9, pp. 1915-22	Novel test design / approach - not relatable to an EU level ecotoxicological risk assessment for Annex I renewal.
793	Ecotoxicology	Faita M. R. et al.	2018	Changes in hypopharyngeal glands of nurse bees (Apis mellifera) induced by pollen-containing sublethal doses of the herbicide Roundup	Chemosphere (2018), Vol. 211, pp. 566-572	This test was conducted using Roundup Original which contains POEA and is not therefore relevant to the EU level risk assessment for ANNEX I renewal.
794	Ecotoxicology	Falis M. et al.	2014	Effects of heavy metals and pesticides on survival of Artemia franciscana.	Acta Veterinaria Brno (2014), Vol. 83, No. 2, pp. 95-99	This paper presents data for a formulation that cannot be related to an EU level risk assessment.

No	Technical section	Author(s)	Year	Title	Source	Reason for not including publication in dossier (based on relevance and reliability criteria)
795	Ecotoxicology	Fan J. et al.	2013	Hydroxyl radical generation and oxidative stress in Carassius auratus exposed to glyphosate and its formulation	Toxicological and environmental chemistry (2013), Vol. 95, No. 7, pp. 1183-1191	Contains POEA, therefore not relevant to EU renewal.
796	Ecotoxicology	Fan J. Y. et al.	2013	Herbicide Roundup® and its main constituents cause oxidative stress and inhibit acetylcholinesterase in liver of Carassius auratus	Journal of environmental scienc and health, Part B. Pesticides, food contaminants and agricultural wastes (2013), Vol. 48, No. 10, pp. 844-850	Contains POEA, therefore not relevant to EU renewal.
797	Ecotoxicology	Farabaugh N. F. et al.	2014	Behavioral responses of the Strawberry Poison Frog (Oophaga pumilio) to herbicide olfactory cues: possible implications for habitat selection and movement in altered landscapes.	Canadian Journal of Zoology (2014), Vol. 92, No. 11, pp. 979-984	Endpoints based on avoidance behaviour are not used in the ecotoxicological risk assessment for the Annex I renewal purposes.
798	Ecotoxicology	Farina W. M. et al.	2019	Effects of the Herbicide Glyphosate on Honey Bee Sensory and Cognitive Abilities: Individual Impairments with Implications for the Hive.	Insects (2019), Vol. 10, No. 10, pp. E354	This is a review article. No data presented that is supported.
799	Ecotoxicology	Fedorova N. V. et al.	2019	Influence of glyphosate on the morphogenesis and biochemical indicators of onions and wheat.	Zashchita i Karantin Rastenii (2019), No. 9, pp. 47-48	Article concerns the effect of herbicide use on the nutrient content of wheat and onions. The endpoints / observations are not relatable to an EU level ecotoxicological risk assessment for Annex I renewal.
800	Ecotoxicology	Felix F. J. et al.	2015	Impact of the herbicide glyphosate roundup (41%) on the haematology of the freshwater fish, Catla catla (Hamilton)	IOSR Journal of Environmental Science, Toxicology and Food Technology (2015), Vol. 9, No. 4-3, pp. 56-60	Contains POEA, therefore not relevant to EU renewal.
801	Ecotoxicology	Felix F. J. et al.	2018	Efficacy of herbicide glyphosate Hijack on the blood parameters of the freshwater fish, Catla catla (HAM)	Asian Journal of Biology (2018), Vol. 7, No. 2, pp. 38848	Biological impacts on enzyme levels in blood are not used in an EU level ecotoxicological risk assessment.
802	Ecotoxicology	Felline S. et al.	2019	The response of the algae Fucus virsoides (Fucales, Ochrophyta) to Roundup® solution exposure: A metabolomics approach.	Environmental pollution (2019), Vol. 254, No. Pt A, pp. 112977	Novel approach utilising metabolomics. The latter is not used in EU level risk assessment for Annex I renewal and is thusnot releatable to the risk assessment.
803	Ecotoxicology	Ferreira E. A. et al.	2015	Cassava physiological responses to the application of herbicides. Respostas fisiologicas da mandioca a aplicacao de herbicidas.	Semina: Ciencias Agrarias (2015), Vol. 36, No. 2, pp. 645-655	Endpoints not relatable to an EU level ecotoxicological risk assessment for Annex I renewal.
804	Ecotoxicology	Ferreira-Junior D. F. et al.	2017	Low Concentrations of Glyphosate-Based Herbicide Affects the Development of Chironomus xanthus	Water, air, and soil pollution (2017), Vol. 228, No. 10, 390 p	The purpose of the study was to test acute and chronic toxicity of Roundup® Original to a tropical fresh water midge. Roundup Original contains POEA surfactant which is not permitted for use in formulations in the EU. The representative formulation (MON 52276) does not contain POEA. The influence of the surfactant on the achieved results in this study cannot be excluded. Due to the test materials not being the representative formulation for the EU renewal, the study is not relevant to the EU level Annex I ecotoxicology risk assessment.

No	Technical section	Author(s)	Year	Title	Source	Reason for not including publication in dossier (based on relevance and reliability criteria)
805	Ecotoxicology	Figueiredo J. et al.	2014	Effects of four types of pesticides on survival, time and size to metamorphosis of two species of tadpoles (Rhinella marina and Physalaemus centralis) from the southern Amazon, Brazil.	Herpetological Journal (2014), Vol. 24, No. 1, pp. 7-15	The aim of the work presented in the paper was to evaluate the effects of four commonly applied herbicides on the survival and development on amphibians in Brazil. It was stated by the authors that standard fish surrogate endpoint data may not be directly applicable to Brazil's amphibian species. Thus the local species selected, and testing approach used are not directly relatable to an EU level ecotoxicological risk assessment for Annex I renewal purposes. Furthermore, the acute and chronic toxicity tests were not conducted according to any recognised test guideline with neither specific validity criteria nor animal welfare considered. The frog eggs were collected from temporary ponds in Southern Amazonia, where previous exposure of the eggs to other chemicals in the environment is unclear. The eggs were hatched in rainwater, without measured water quality characteristics. The test item selected for glyphosate was a local glyphosate formulation (480 g/L). The effect of glyphosate on metamorphosis was inconclusive. Due to the test materials not being the representative formulation for the EU renewal, the study is not relevant to the EU level Annex I ecotoxicology risk assessment.
806	Ecotoxicology	de Souza Filho J. et al.	2013	Toxicological effects of a glyphosate-based formulation on the liver of Poecilia reticulata	Current Topics In Toxicology (2013), Vol. 9, pp. 81-91	The study was performed to assess the acute mortality (based on OECD 203) and sub-lethal effects (including histopathology). The study lacks several experimental standard procedures (e.g. analytical verification, reporting of validity criteria). Furthermore the formulation (Roundup Transorb) is not the representative formulation for the EU Annex I renewal (MON 52276) that contains POEA, a co-formulant that is not permitted in formulations in the EU. Due to the test materials not being the representative formulation for the EU renewal, the study is not relevant to the EU level Annex I ecotoxicology risk assessment.
807	Ecotoxicology	Filippov A. A. et al.	2019	Effect of Roundup Herbicide on the Temperature Characteristics of Maltase of the Intestinal Mucosa in Juvenile Fish	INLAND WATER BIOLOGY (2019), Vol. 12, No. 2, pp. 248-253	Enzymatic impacts resulting from exposure are not considered in the EU level ecotoxicological risk assessment for Annex I renewal. It is extremely difficult to relate the findings to an EU level exposure scenario.
808	Ecotoxicology	Fiorino E. et al.	2018	Effects of glyphosate on early life stages: comparison between Cyprinus carpio and Danio rerio.	Environmental science and pollution research international (2018), Vol. 25, No. 9, pp. 8542-8549	This paper is a poster abstract with no associated paper. There is insufficient information presented in the poster abstract to establish relevance of the poster to the Annex I renewal.
809	Ecotoxicology	Frontera J. L. et al.	2014	Effects of glyphosate and polyoxyethylene amine on metabolic rate and energy reserves of Procambarus clarkii juveniles.	Open Environmental Sciences (2014), Vol. 8, pp. 49-53	Contains POEA, therefore not relevant to EU renewal.

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810	Ecotoxicology	Fuentes L. et al.	2011	Comparative toxicity of two glyphosate formulations (original formulation of Roundup® and Roundup WeatherMAX®) to six North American larval anurans.	Environmental toxicology and chemistry (2011), Vol. 30, No. 12, pp. 2756-61	The original formulation of Roundup and Roundup WeatherMAX are not the representative formulation for the Annex I renewal. The original formulation of Roundup used, contains a POEA surfactant, which is not permitted for use in the EU. The test design is well described in the paper, but due to the test materials not being the representative formulation for the EU renewal, the study is not relevant to the EU level Annex I ecotoxicology risk assessment.
811	Ecotoxicology	Gagneten A. M. et al.	2014	EFECTOS DEL HERBICIDA RONDO® SOBRE Cerodaphnia reticulata (CRUSTACEA, CLADOCERA) Y DEGRADABILIDAD DEL GLIFOSATO (N-FOSFOMETILGLICINA) EN CONDICIONES EXPERIMENTALES	Natura Neotropicalis (2014), Vol. 45, No. 1&2, pp. 71-85	Formulation is not the representative formulation for the Annex I EU renewal.
812	Ecotoxicology	Gahl M. K. et al.	2011	Effects of chytrid fungus and a glyphosate-based herbicide on survival and growth of wood frogs (Lithobates sylvaticus).	Ecological applications (2011), Vol. 21, No. 7, pp. 2521-9	Toxicity of glyphosate products to wild wood frogs and chytrid fungus are assessed.. The study was conducted in Canada. Endpoints do not lend themselves to the EU renewal of glyphosate.
813	Ecotoxicology	Galin R. R. et al.	2019	Effect of Herbicide Glyphosate on Drosophila melanogaster Fertility and Lifespan.	Bulletin of experimental biology and medicine (2019), Vol. 167, No. 5, pp. 663-666	The formulation used (GLYPHOS) contains POEA which is not relevant to the EU level ecotoxicological risk assessment for Annex I renewal, as the representative formulation does not contain POEA, which is a known surfactant this is known to be more toxic than glyphosate.
814	Ecotoxicology	Garcia-Espineira M. et al.	2018	Toxicity of atrazine- and glyphosate-based formulations on Caenorhabditis elegans.	Ecotoxicology and environmental safety (2018), Vol. 156, pp. 216-222	The formulated product used in the test contains MON 2139 which contains POEA (MON0818). Therefore findings are not relevant to the EU level andrepresentative formulation for the Annex I renewal.
815	Ecotoxicology	Garcia-Perez J. A. et al.	2016	Impact of litter contaminated with glyphosate-based herbicide on the performance of Pontoscolex corethrurus, soil phosphatase activities and soil pH	Applied soil ecology (2016), Vol. 104, pp. 31-41	Relates to a long term monitoring study on earthworms specific to South America.
816	Ecotoxicology	Garza-Leon C. V. et al.	2017	Toxicity evaluation of cypermethrin, glyphosate, and malathion, on two indigenous zooplanktonic species.	Environmental science and pollution research international (2017), Vol. 24, No. 22, pp. 18123-18134	The tested formulation is not the representative formulation for the Annex I renewal.
817	Ecotoxicology	Gaupp-Berghausen M. et al.	2015	Glyphosate-based herbicides reduce the activity and reproduction of earthworms and lead to increased soil nutrient concentrations.	Scientific reports (2015), Vol. 5, pp. 12886	Paper discusses indirect impact of nutrient loads in soil after GBH application. Not relatable to EU ecotoxicology assessment.
818	Ecotoxicology	Ge HuiLin et al.	2014	Predicting joint toxicity of organophosphorus and triazine pesticides on green algae using the generalized concentration addition model.	China Environmental Science (2014), Vol. 34, No. 9, pp. 2413-2419	Discusses use of novel test approaches, not currently relevant to EU level risk assessment in ecotoxicology.

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819	Ecotoxicology	Georgieva E. et al.	2018	GLYPHOSATE-BASED HERBICIDE ALTERS THE HISTOLOGICAL STRUCTURE OF GILLS OF TWO ECONOMICALLY IMPORTANT CYPRINID SPECIES (COMMON CARP, CYPRINUS CARPIO AND BIGHEAD CARP, ARISTICHTHYS NOBILIS).	Applied Ecology and Environmental Research (2018), Vol. 16, No. 3, pp. 2295-2305	Observations in the paper cannot be related to the ANNEX I level EU risk assessment for renewal. Sub-lethal effects at the histopathological level are not considered in the EU level ecotoxicological risk assessment.
820	Ecotoxicology	Gertzog B. J. et al.	2011	Avoidance of three herbicide formulations by Eastern Red-backed Salamanders (Plethodon cinereus).	Herpetological Conservation and Biology (2011), Vol. 6, No. 2, pp. 237-241	Salamanders were exposed to glyphosate (and other pesticides) in a petri dish with avoidance measured. The endpoint is not relevant to the regulatory renewal of glyphosate.
821	Ecotoxicology	Geyer R. L. et al.	2016	Effects of Roundup formulations, nutrient addition, and Western mosquitofish (Gambusia affinis) on aquatic communities.	Environmental science and pollution research international (2016), Vol. 23, No. 12, pp. 11729-39	Formulations used do not match that of the representative formulation for the Annex I renewal. Effects from co-formulants cannot be excluded.
822	Ecotoxicology	Gherhardt T. et al.	2011	Avoidance behavior of Eisenia foetida to acetone, deltamethrin and glyphosate	Annals of West University of Timisoara, Series of Chemistry (2011), Vol. 20, No. 2, pp. 1-10	This study was a new design to look at the avoidance of earthworms to chemicals. The study was not conducted to a known guideline. For the glyphosate part of the study, all the worms died due to heat/dehydration and so the effects of glyphosate were not clearly determined and the endpoints are not relevant to the regulatory risk assessment of glyphosate.
823	Ecotoxicology	Gholami-Seyedkolaei S. J. et al.	2013	Effect of a glyphosate-based herbicide in Cyprinus carpio: assessment of acetylcholinesterase activity, hematological responses and serum biochemical parameters.	Ecotoxicology and environmental safety (2013), Vol. 98, pp. 135-41	Paper describes haematological and enzymatic biomarkers that could be used to assess the impact on fish in the field. There are no data presented that could be used in EU level Annex I renewal Ecotoxicological risk assessment.
824	Ecotoxicology	Gholami-Seyedkolaei S. J. et al.	2013	Optimization of recovery patterns in common carp exposed to roundup using response surface methodology: evaluation of neurotoxicity and genotoxicity effects and biochemical parameters.	Ecotoxicology and environmental safety (2013), Vol. 98, pp. 152-61	Molecular level results that are not relatable to an EU level ecotoxicology risk assessment.
825	Ecotoxicology	Ghose S. L. et al.	2014	Acute toxicity tests and meta-analysis identify gaps in tropical ecotoxicology for amphibians	Environmental Toxicology and Chemistry (2014), Vol. 33, No. 9, pp. 2114-2119	Paper does not present endpoint data on the representative formulation. Therefore not relevant.
826	Ecotoxicology	Giaquinto P. C. et al.	2017	Effects of Glyphosate-Based Herbicide Sub-Lethal Concentrations on Fish Feeding Behavior.	Bulletin of environmental contamination and toxicology (2017), Vol. 98, No. 4, pp. 460-464	Test design and endpoints are not used in EU level risk assessment for ANNEX I renewal.
827	Ecotoxicology	Givaudan N. et al.	2014	Earthworm tolerance to residual agricultural pesticide contamination: field and experimental assessment of detoxification capabilities.	Environmental pollution (2014), Vol. 192, pp. 9-18	Study provides information at the cellular/molecular level and is not an ecotoxicological relevant study

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828	Ecotoxicology	Gomes M. P. et al.	2017	Effects of glyphosate acid and the glyphosate-commercial formulation (Roundup) on Dimorphandra wilsonii seed germination: Interference of seed respiratory metabolism.	Environmental pollution (2017), Vol. 220, No. Pt A, pp. 452-459	Findings are not relatable to an EU level Annex I risk assessment as this species is only found in Brazil.
829	Ecotoxicology	Griesinger L. M. et al.	2011	Effects of a glyphosate-based herbicide on mate location in a wolf spider that inhabits agroecosystems.	Chemosphere (2011, Vol. 84, No. 10, pp. 1461-6	Study looks at the potential impact of glyphosate product on wolf spider mate location. Conducted in the US. No relevant endpoints generated for use in the risk assessment for the renewal of glyphosate.
830	Ecotoxicology	Grzesiuk A. et al.	2018	EFFECT OF ROOT-ZONE GLYPHOSATE EXPOSURE ON GROWTH AND ANTHOCYANINS CONTENT OF RADISH SEEDLINGS	ACTA SCIENTIARUM POLONORUM-HORTORUM CULTUS (2018), Vol. 17, No. 2, pp. 3-10	Unable to establish what exposure concentrations were used in the study. Therefore not relatable to an EU level risk assessment for EU renewal.
831	Ecotoxicology	Gueller P. et al.	2018	Investigation of some pesticides' effects on activities of glutathione reductase and glutathione S-transferase purified from turkey liver under in vitro conditions.	Journal of the Institute of Science and Technology (2018), Vol. 8, No. 3, pp. 211-217	Paper describes an in vitro enzyme assay that cannot be related to an EU level ecotoxicological risk assessment.
832	Ecotoxicology	Guijarro K. H. et al.	2018	Soil microbial communities and glyphosate decay in soils with different herbicide application history.	The Science of the total environment (2018), Vol. 634, pp. 974-982	Soil dissipation in Argentina is difficult to relate and thus not relevant to EU risk assessment.
833	Ecotoxicology	Guilherme S. et al.	2014	DNA and chromosomal damage induced in fish (Anguilla anguilla L.) by aminomethylphosphonic acid (AMPA)--the major environmental breakdown product of glyphosate.	Environmental science and pollution research international (2014), Vol. 21, No. 14, pp. 8730-9	The study assessed the impact of AMPA on Anguila anguila using COMET and ENA assays. The assays are not considered relevant to the ecotoxicological risk assessment for Annex I renewal. Therefore this paper should be considered non-relevant.
834	Ecotoxicology	Gutierrez M. F. et al.	2017	Disruption of the hatching dynamics of zooplankton egg banks due to glyphosate application.	Chemosphere (2017), Vol. 171, pp. 644-653	Endpoints based on abundance are used in EU level ecotoxicological risk assessment. The formulation used is not the representative formulation and therefore the impact of co-formulants cannot be excluded. Therefore this study is not relevant to the Annex I renewal.
835	Ecotoxicology	Hagner M. et al.	2019	Effects of a glyphosate-based herbicide on soil animal trophic groups and associated ecosystem functioning in a northern agricultural field	Scientific Reports (2019), Vol. 9, No. 1, pp. 1-13	This study looked at the effect of Roundup + hoeing on soil organisms. Effects on soil organisms based on Roundup alone cannot be determined from the presented data test groups. The test substance used is also based MON 78294 which is not the representative formulation for the Annex I renewal.
836	Ecotoxicology	Hanlon S. M. et al.	2012	The impact of pesticides on the pathogen Batrachochytrium dendrobatidis independent of potential hosts.	Archives of environmental contamination and toxicology (2012), Vol. 63, No. 1, pp. 137-43	Paper discusses the impact of various pesticides on fungal spores using approaches that generate endpoints not used in EU ecotoxicology risk assessment for Annex I renewal.
837	Ecotoxicology	Hanlon S. M. et al.	2014	The interactive effects of chytrid fungus, pesticides, and exposure timing on gray treefrog (Hyla versicolor) larvae.	Environmental toxicology and chemistry (2014), Vol. 33, No. 1, pp. 216-22	Contains POEA and thus not relevant to the EU level Annex I ecotoxicological risk assessment.

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838	Ecotoxicology	Hasan F. et al.	2016	Ecotoxicological hazards of herbicides on biological attributes of Zygogramma bicolorata Pallister (Coleoptera: Chrysomelidae).	Chemosphere (2016), Vol. 154, pp. 398-407	Novel surface residue exposure study that presents endpoint data that is not relatable to the EU level risk assessment.
839	Ecotoxicology	Hefnawy M. A. et al.	2012	Interaction of some herbicides with phosphate solublization by Aspergillus niger and Aspergillus fumigatus.	Australian Journal of Basic and Applied Sciences (2012), Vol. 6, No. 10, pp. 518-524	Findings are not directly related to the effects of glyphosate on the organism.
840	Ecotoxicology	Herbert L. T. et al.	2014	Effects of field-realistic doses of glyphosate on honeybee appetitive behaviour.	The Journal of experimental biology (2014), Vol. 217, No. Pt 19, pp. 3457-64	Endpoints described are not currently relevant to EU level ecotoxicology risk assessment.
841	Ecotoxicology	Hill M. P. et al.	2012	Toxic effect of herbicides used for water hyacinth control on two insects released for its biological control in South Africa	Biocontrol science and technology (2012), pp. 1321-1333	Non-EU monitoring study. Extrapolation to EU is difficult.
842	Ecotoxicology	Hirano L. Q. L. et al.	2019	Effects of egg exposure to atrazine and/or glyphosate on bone development in Podocnemis unifilis (Testudines, Podocnemididae).	Ecotoxicology and environmental safety (2019), Vol. 182, pp. 109400	Test approaches and observations performed are not relatable to EU level risk assessment.
843	Ecotoxicology	Hong Y. et al.	2018	Assessment of the oxidative and genotoxic effects of the glyphosate-based herbicide roundup on the freshwater shrimp, Macrobrachium nipponensis.	Chemosphere (2018), Vol. 210, pp. 896-906	Study conducted using a formulation of glyphosate that is not the representative formulation for the EU renewal.
844	Ecotoxicology	Houssou A. M. et al.	2017	Lethal and sub-lethal effects of cypermethrin and glyphosate on the freshwater's copepod, Acanthocyclops robustus.	ISJ-Invertebrate Survival Journal (2017), Vol. 14, pp. 140-148	The test species selected is also not described and environmental holding conditions (water quality) prior to and during the study were not indicated). The formulation (Kumark® (480 g/L) is not the representative formulation for the EU Annex I renewal (MON 52276). The study was not conducted to a guideline, but the acute toxicity test can be considered in-line with OECD guideline 202. According to OECD 202, the validity criteria are not met for Glyphosate (> 10 % mortality in the control). Additionally, there were no quantifiable endpoints presented in the paper to a non-standard species. Due to the test materials not being the representative formulation for the EU renewal, the study is not relevant to the EU level Annex I ecotoxicology risk assessment.
845	Ecotoxicology	Hued A. C. et al.	2012	Exposure to a commercial glyphosate formulation (Roundup®) alters normal gill and liver histology and affects male sexual activity of Jenynsia multidentata (Anablepidae, Cyprinodontiformes).	Archives of environmental contamination and toxicology (2012), Vol. 62, No. 1, pp. 107-17	Not the representative formulation. The formulation Roundup Max is based on MON 14420, which is not MON 52276, the representative formulation used in the renewal process.

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846	Ecotoxicology	Iannilli V. et al.	2019	Genotoxic effects induced by glyphosate-based herbicide on two gammarid species: the invasive Dikerogammarus villosus (Sowinsky, 1894) (Crustacea, Amphipoda) and the native Echinogammarus veneris (Heller, 1865).	Fundamental and Applied Limnology (2019), Vol. 193, No. 2, pp. 143-153	Endpoints cannot be used in an EU ecotoxicological risk assessment for Annex I renewal.
847	Ecotoxicology	Imre P. et al.	2018	TOXICITY TEST OF INDIVIDUAL AND COMBINED TOXIC EFFECTS OF HERBICIDE AMEGA AND COPPER-SULPHATE ON PHEASANT EMBRYOS. Original Title: AMEGA GYOMIRTO SZER ES A REZ-SZULFAT EGYEDI ES EGYUTTES MEREGHATASANAK VIZSGALATA FACANEMBRIOKBAN.	Novenyvdelem (2018), Vol. 54, No. 11, pp. 476-482	It is not possible to relate the observed effects in the study to the ecotoxicology risk assessment for EU renewal.
848	Ecotoxicology	Iori S. et al.	2019	The effects of glyphosate and AMPA on the mediterranean mussel Mytilus galloprovincialis and its microbiota.	Environmental research (2019), Vol. 182, pp. 108984	Paper discusses the effects of glyphosate at the molecular level which not used in an EU level assessment or renewal.
849	Ecotoxicology	Iummato M. M. et al.	2013	Evaluation of biochemical markers in the golden mussel Limnoperna fortunei exposed to glyphosate acid in outdoor microcosms.	Ecotoxicology and environmental safety (2013), Vol. 95, pp. 123-9	Cellular level endpoints cannot be related to the Ecotoxicology Annex I renewal risk assessment.
850	Ecotoxicology	Janben R. et al.	2019	A Glyphosate Pulse to Brackish Long-Term Microcosms Has a Greater Impact on the Microbial Diversity and Abundance of Planktonic Than of Biofilm Assemblages	FRONTIERS IN MARINE SCIENCE (2019), Vol. 6, Article 758	Paper discusses a novel technique to monitor the effects of herbicide on brackish proteo bacteria and bacterial communities measuring 16S rRNA genes in samples of water accompanied by total cell counts and using operational taxonomic units. Whilst informative techniques were used, these data are not relevant to an EU level Annex I ecotoxicological risk assessment according to the 1107/2009 data requirements.
851	Ecotoxicology	Janssens L. et al.	2017	Stronger effects of Roundup than its active ingredient glyphosate in damselfly larvae.	Aquatic toxicology (2017), Vol. 193, pp. 210-216	Formulation tested contains POEA which is not present in the representative product in the EU renewal.
852	Ecotoxicology	Jantawongsri K. et al.	2015	Altered immune response of the rice frog Fejervarya limnocharis living in agricultural area with intensive herbicide utilization at Nan Province, Thailand.	Environment Asia (2015), Vol. 8, No. 1, pp. 68-74	Paper presents results of liver analyses from field collected frogs, in sites in Thailand where multiple pesticides have been used. Glyphosate was one of the chemicals used in the rice growing area, but no specific data relating to glyphosate that could be used in an EU level risk assessment is presented.
853	Ecotoxicology	Jaskulski D. et al.	2011	Effect of pre-harvest glyphosate application on grain germination and emergence of winter wheat self-sown plants. Wpyw glifosatu stosowanego przed zbiorem na kiekowanie ziarna i wschody samosiewow pszenicy ozimej.	Progress in Plant Protection (2011), Vol. 51, No. 2, pp. 927-931	Roundup energy (450 SL) is the test substance in this study which is not the representative product for the renewal of glyphosate. The study is conducted in winter wheat, this is not a use on the representative GAP table for the renewal.

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854	Ecotoxicology	Jayawardena U. A. et al.	2011	Acute and chronic toxicity of four commonly used agricultural pesticides on the Asian common toad, Bufo melanostictus schneider	Journal of the National Science Foundation of Sri Lanka (2011), Vol. 39, No. 3, pp. 267-276	Study was conducted with glyphosate product in Sri Lanka, determining the toxicity to the Asian common toad. Egg strands collected from a university park in Sri Lanka, whereupon the tadpoles were subsequently exposed up to 25 ppm glyphosate.tTest concentrations wererenewed weekly, with observations at 10 and 30 days on metamorphosis. 48hr LC50 values were determined for glyphosate. Due to the test materials not being the representative formulation for the EU renewal, the study is not relevant to the EU level Annex I ecotoxicology risk assessment.
855	Ecotoxicology	Jayawardena U. A. et al.	2010	Toxicity of agrochemicals to common hourglass tree frog (Polypedates cruciger) in acute and chronic exposure.	International Journal of Agriculture and Biology (2010), Vol. 12, No. 5, pp. 641-648	Conducted with glyphosate product in Sri Lanka, studies looks at the toxicity to the Common hourglass tree frog. Egg masses were collected from a university park in Sri Lanka, with tadpoles then exposed up to 1 ppm for a chronic test. Test concentrations were renewed weekly, observations made on metamorphosis. The material and methods lacks important information. Due to the test materials not being the representative formulation for the EU renewal, the study is not relevant to the EU level Annex I ecotoxicology risk assessment.
856	Ecotoxicology	Jayawardena U. A. et al.	2017	Effects of agrochemicals on disease severity of Acanthostomum burminis infections (Digenea: Trematoda) in the Asian common toad, Duttaphrynus melanostictus.	BMC Zoology (2017), Vol. 2, No. 13, pp. 1	Discusses results of exposure of nematode disease rates to multiple a.i. including a glyphosate formulation containing POEA. POEA containing formulations are not relevant to EU level risk assessment.
857	Ecotoxicology	Jenkins M. B. et al.	2017	Impact of glyphosate-resistant corn, glyphosate applications and tillage on soil nutrient ratios, exoenzyme activities and nutrient acquisition ratios.	Pest management science (2017), Vol. 73, No. 1, pp. 78-86	Long term monitoring study that is not relevant for ecotoxicological risk assessment for Annex I glyphosate renewal.
858	Ecotoxicology	Jesenska S. et al.	2011	Species Sensitivity Distribution (SSD) - application in environmental risk assessment of pesticides in European rivers. Distribuce citlivosti druhu (Species Sensitivity Distribution - SSD) - vyuziti pro hodnoceni rizik pesticidu v evropskych rekach.	Bulletin - VURH Vodnany (2011), Vol. 47, No. 3, pp. 29-38	Data for glyphosate was used in a SSD model to look at the river ecosystem (in Belgium). Concentrations were monitored at locations with the river basin and used in the model. Results were not relevant for the risk assessment.
859	Ecotoxicology	Jiang J. et al.	2017	Influence of commonly used pesticides on acute toxicity to earthworm Eisenia fetida and alteration of antioxidant enzyme activities.	Journal of Agro-Environment Science (2017), Vol. 36, No. 3, pp. 466-473	Acute toxicity to earthworms is not a data requirement in the EU level Annex I ecotoxicology risk assessment.
860	Ecotoxicology	Jin J. et al.	2018	Sub-lethal effects of herbicides penoxsulam, imazamox, fluridone and glyphosate on Delta Smelt (Hypomesus transpacificus).	Aquatic toxicology (2018), Vol. 197, pp. 79-88	Presented endpoints based on cellular levels of enzymes cannot be related to an Ecotoxicological risk assessment for Annex I renewal.

No	Technical section	Author(s)	Year	Title	Source	Reason for not including publication in dossier (based on relevance and reliability criteria)
861	Ecotoxicology	Jofre D. M. et al.	2015	Acute and chronic toxicity of glyphosate to native fish from San Luis province, Argentina	Current Topics In Toxicology (2015), Vol. 11, pp. 49-54	The tested formulation contains POEA and is therefore not relevant to the MON 52276 representative formulation for the Annex I renewal.
862	Ecotoxicology	Jones D. K. et al.	2010	Roundup and amphibians: the importance of concentration, application time, and stratification.	Environmental toxicology and chemistry (2010), Vol. 29, No. 9, pp. 2016-25	Glyphosate product tests performed with larval amphibians (wood frog and American toads) in an outdoor mesocosms in the US. Up to 3 mg ae/L was applied at 0, 7 and 14 days to the mesocosm, and replicated. Egg masses were collected from nearby ponds and hatched in culture ponds with aged well-water. Due to the test materials not being the representative formulation for the EU renewal, the study is not relevant to the EU level Annex I ecotoxicology risk assessment.
863	Ecotoxicology	Jones D. K. et al.	2010	Competitive stress can make the herbicide Roundup more deadly to larval amphibians	Environmental Toxicology and Chemistry (2010), Vol. 30, No. 2, pp. 446-454	This study assessed competition as a stressor in conjunction with Roundup treatment in an outdoor mesocosm (USA) containing different densities of tadpoles (green frogs, gray tree frogs, american bullfrogs). Glyphosate product was applied up to 3 mg ae/L for 7 dayswith replication. Egg masses were collected from nearby ponds and hatched in wading pools with aged well-water. Due to the test materials not being the representative formulation for the EU renewal, the study is not relevant to the EU level Annex I ecotoxicology risk assessment.
864	Ecotoxicology	Kalai K. et al.	2018	Haemato-biochemical alterations in induced acute glyphosate (C3H8NO5P) intoxication in Kuroiler birds	International Journal of Chemical Studies (2018), Vol. 6, No. 4, pp. 1-4	Paper contains data that cannot be related to an EU level ecotoxicology risk assessment.
865	Ecotoxicology	Karahan A. et al.	2018	Determination of the effect of some pesticides on honey bees.	International Journal of Agriculture, Environment and Food Sciences (2018), Vol. 2, No. 3, pp. 104-108	No effects observed from glyphosate exposure on body movement, however, endpoint not relevant for an EU level Annex I ecotoxicology risk assessment.
866	Ecotoxicology	Kelly D. W. et al.	2010	Synergistic effects of glyphosate formulation and parasite infection on fish malformations and survival	Journal of applied ecology (2010), Vol. 47, No. 2, pp. 498-504	Snails collected from a river in New Zealand. Study looks at exposure to glyphosate + POEA surfactant (diluted to 0.36 mg a.i./L), and parasite infection with particular emphasis on spinal malformation and survival of juvenile fish.The study also looks at the influence of glyphosate concentration on the rate of infection and survival of P.antipodarum snails. The paper does not contribute to the renewal of glyphosate in the EU.
867	Ecotoxicology	Khan A. et al.	2016	Comparative Study of Toxicological Impinge of Glyphosate And Atrazine (Herbicide) on Stress Biomarkers; Blood Biochemical and Haematological Parameters of the Freshwater Common Carp (Cyprinus carpio).	Polish Journal of Environmental Studies (2016), Vol. 25, No. 5, pp. 1995-2001	Molecular and chemical observations are not relevant to traditional ecotoxicological risk assessment. Population level effects may not be inferred from such observations.
868	Ecotoxicology	Kielak E. et al.	2011	Phytotoxicity of Roundup Ultra 360 SL in aquatic ecosystems: Biochemical evaluation with duckweed (Lemna minor L.) as a model plant	Pesticide biochemistry and physiology (2011), Vol. 99, No. 3, pp. 237-243	Use of glyphosate product in a study on lemna to assess the impact on biomass and Chlorophyll content of plants. This study was performed in Poland. The paper does not contribute to the renewal of glyphosate in the EU.

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869	Ecotoxicology	King J. J. et al.	2010	Toxic Effects of the Herbicide Roundup Regular on Pacific Northwestern Amphibians	Northwestern Naturalist (2010), Vol. 91, no. 3, pp. 318-324	Conducted in the US. Glyphosate product + POEA surfactant, used in a study to look at the effect on amphibians (collected from the wild, kept in aerated pond water until 24 hr after hatching), up to 5 mg/L, static tests, pH buffered with spring water, LC50 generated. Due to the test materials not being the representative formulation for the EU renewal, the study is not relevant to the EU level Annex I ecotoxicology risk assessment.
870	Ecotoxicology	Kittle R. P. et al.	2018	Effects of glyphosate herbicide on the gastrointestinal microflora of Hawaiian green turtles (Chelonia mydas) Linnaeus.	Marine pollution bulletin (2018), Vol. 127, pp. 170-174	Discusses a novel technique using isolated strains of bacteria from turtle guts to assess their sensitivity to glyphosate. Findings not relatable to an EU level ecotoxicology risk assessment for Annex I renewal.
871	Ecotoxicology	Koakoski G. et al.	2014	Agrichemicals chronically inhibit the cortisol response to stress in fish.	Chemosphere (2014), Vol. 112, pp. 85-91	End-points based on measured stress hormones are not relevant to an EU level Annex I ecotoxicology risk assessment for renewal.
872	Ecotoxicology	Kondera E. et al.	2018	Effect of glyphosate-based herbicide on hematological and hemopoietic parameters in common carp (Cyprinus carpio L).	Fish physiology and biochemistry (2018), Vol. 44, No. 3, pp. 1011-1018	End-points presented are not relevant to an EU level risk assessment for glyphosate renewal in the EU.
873	Ecotoxicology	Koprivnikar J. et al.	2012	Agricultural effects on amphibian parasitism: importance of general habitat perturbations and parasite life cycles.	Journal of wildlife diseases (2012), Vol. 48, No. 4, pp. 925-36	Pond sampling / monitoring study performed in Canada. Not relatable to an EU level ecotoxicology risk assessment for Annex I renewal.
874	Ecotoxicology	Kostopoulou S. et al.	2020	Assessment of the effects of metribuzin, glyphosate, and their mixtures on the metabolism of the model plant Lemna minor L. applying metabolomics.	Chemosphere (2020), Vol. 239, pp. 124582	The paper describes a metabolomics approach to establish the impact of glyphosate alone and mixtures with metribuzin on the metabolome of lemna. Novel approach to biomarker detection is not considered in an EU level assessment.
875	Ecotoxicology	Krynak K. L. et al.	2017	Rodeo (TM) Herbicide Negatively Affects Blanchard's Cricket Frogs (Acris blanchardi) Survival and Alters the Skin-Associated Bacterial Community.	Journal of Herpetology (2017), Vol. 51, No. 3, pp. 402-410	Uses a formulation that is not relevant to the EU renewal of Glyphosate. (RODEO)
876	Ecotoxicology	Lacaze E. et al.	2010	Genotoxicity assessment in the amphipod Gammarus fossarum by use of the alkaline Comet assay	Mutation Research, Genetic Toxicology and Environmental Mutagenesis (2010), Vol. 700, No. 1-2, pp. 32-38	This study is the development of an assay. Endpoints cannot be used in the regulatory risk assessment of glyphosate.
877	Ecotoxicology	Lajmanovich R. C. et al.	2011	Toxicity of four herbicide formulations with glyphosate on Rhinella arenarum (anura: bufonidae) tadpoles: B-esterases and glutathione S-transferase inhibitors.	Archives of environmental contamination and toxicology (2011), Vol. 60, No. 4, pp. 681-9	Compared toxicity to tadpoles exposed to a range of glyphosate products up to 240 mg ae/L for 48 hrs, enzyme activity was measured. Tadpoles collected from the wild (non-agricultural areas in Argentina, acclimated for 48 hrs). LC50 generated withvery high concentrations tested.
878	Ecotoxicology	Lajmanovich R. C. et al.	2013	Individual and Mixture Toxicity of Commercial Formulations Containing Glyphosate, Metsulfuron-Methyl, Bispyribac-Sodium, and Picloram on Rhinella arenarum Tadpoles.	Water Air and Soil Pollution (2013), Vol. 224, No. 3, pp. Article No.: 1404	Formulation used in the testing is not the representative formulation for the Annex 1 renewal. Also difficult to relate the cellular and molecular level endpoints to an Annex I ecotoxicology risk assessment.

No	Technical section	Author(s)	Year	Title	Source	Reason for not including publication in dossier (based on relevance and reliability criteria)
879	Ecotoxicology	Lallana M. d. C. et al.	2013	Determination of root length reduction (EC50) by a glyphosate formulation using lettuce and wheat as biological indicator species. Original Title: Determinacion de reduccion del crecimiento radical (CE50) por una formulacion de glifosato utilizando lechug	Revista de la Facultad de Ciencias Agrarias Universidad Nacional de Cuyo (2013), Vol. 45, No. 1, pp. 143-151	Endpoints presented were not generated using a test design that reflects use in the field and as such is not considered relevant / relatable to an EU level risk assessment for PPP Annex I renewal.
880	Ecotoxicology	Lance E. et al.	2016	Accumulation and detoxication responses of the gastropod Lymnaea stagnalis to single and combined exposures to natural (cyanobacteria) and anthropogenic (the herbicide RoundUp(®) Flash) stressors.	Aquatic toxicology (2016), Vol. 177, pp. 116-24	Molecular level results that are not relatable to an EU level ecotoxicology risk assessment.
881	Ecotoxicology	Lanctot C. et al.	2013	Effects of the glyphosate-based herbicide Roundup WeatherMax® on metamorphosis of wood frogs (Lithobates sylvaticus) in natural wetlands.	Aquatic toxicology (2013), Vol. 140-141, pp. 48-57	Roundup WeatherMAX contains surfactants that are not relevant to the EU level renewal of glyphosate onto Annex I.
882	Ecotoxicology	Lanctot C. et al.	2014	Effects of glyphosate-based herbicides on survival, development, growth and sex ratios of wood frog (Lithobates sylvaticus) tadpoles. II: agriculturally relevant exposures to Roundup WeatherMax® and Vision® under laboratory conditions.	Aquatic toxicology (2014), Vol. 154, pp. 291-303	The tested formulation contains POEA and is therefore not relevant to the MON 52276 representative formulation for the Annex I renewal.
883	Ecotoxicology	Lanzarin G. A. B. et al.	2019	Dose-dependent effects of a glyphosate commercial formulation - Roundup(®) UltraMax - on the early zebrafish embryogenesis.	Chemosphere (2019), Vol. 223, pp. 514-522	Paper concerns a Roundup formulation that is not the representative formulation for the Annex I renewal.
884	Ecotoxicology	Latorre M. A. et al.	2013	Effects of in vivo exposure to Roundup® on immune system of Caiman latirostris.	Journal of immunotoxicology (2013), Vol. 10, No. 4, pp. 349-54	This study provided blood chemistry analysis for Caiman exposed to Roundup for long periods. These data are not considered to be relevant to the EU level ecotoxicology risk assessment for Annex I renewal. Roundup used also contains POEA, which is a surfactant system not present in the representative formulation.
885	Ecotoxicology	Levis N. A. et al.	2015	Level of UV-B radiation influences the effects of glyphosate-based herbicide on the spotted salamander.	Ecotoxicology (2015), Vol. 24, No. 5, pp. 1073-86	Study investigates the effect on different UV light regimes on the effects on glyphosate on salamanders. As no specific effects and concentrations related to glyphosate alone are not mentioned, the findings are not relevant to an EU level renewal assessment for annex I.
886	Ecotoxicology	Levis N. A. et al.	2016	Non-adaptive phenotypic plasticity: the effects of terrestrial and aquatic herbicides on larval salamander morphology and swim speed	Biological journal of the Linnean Society (2016), Vol. 118, No. 3, pp. 569-581	Adaptive phenotypic plasticity is not an endpoint / observed parameter considered in the EU level ecotoxicology risk assessment for Annex I renewal.

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887	Ecotoxicology	Li M. et al.	2017	Metabolic profiling of goldfish (Carassius auratis) after long-term glyphosate-based herbicide exposure.	Aquatic toxicology (2017), Vol. 188, pp. 159-169	Metabolomic approaches to assessing the fate of pesticides in organisms looks specifically at cellular and molecular level based endpoints that are not used in the EU level ecotoxicology risk assessment for Annex I renewal.
888	Ecotoxicology	Li P-L. et al.	2015	Response of Nitzschia amplectens in growth and kinestate to glyphosate original powder	Nongyao (2015), Vol. 54, No. 2, pp. 108-111	Based on Roundup Original which contains POEA which is not relevant at EU level for MON 52276 renewal. Due to the test materials not being the representative formulation for the EU renewal, the study is not relevant to the renewal.
889	Ecotoxicology	Li Q. et al.	2013	Effects of herbicides application on allelopathic potential of Eupatorium catarium.	Allelopathy Journal (2013), Vol. 31, No. 1, pp. 139-146	Observations caused by mixture of compounds / potentially causal factors and thus not attributable to a substance of concern (e.g. mixture toxicity).
890	Ecotoxicology	Li Y. et al.	2019	Acute exposure of glyphosate-based herbicide induced damages on common carp organs via heat shock proteins-related immune response and oxidative stress	Toxin Reviews (2019), Ahead of Print, https://doi.org/10.1080/15569543.2019.1621903	Formulation is not the representative formulation for the ANNEX I renewal of glyphosate. As the identity of the powder and the form in which it was supplied (salt type, to establish acid equivalence content) cannot be confirmed. Co-formulants are also unknown.
891	Ecotoxicology	Lipok J. et al.	2010	The toxicity of Roundup® 360 SL formulation and its main constituents: glyphosate and isopropylamine towards non-target water photoautotrophs.	Ecotoxicology and environmental safety (2010), Vol. 73, No. 7, pp. 1681-8	Uses glyphopsate product, study looking at impact on marine microbial (algae) communities (14 d old log-phase cultures used), exposed up to 3mM of GLY. EC50 generated. Due to the test materials not being the representative formulation for the EU renewal, the study is not relevant to the EU level Annex I ecotoxicology risk assessment.
892	Ecotoxicology	Liu C. et al.	2012	Size-controlled preparation of hollow silica spheres and glyphosate release	Transactions of Nonferrous Metals Society of China (2012), Vol. 22, No. 5, pp. 1161-1168	This paper relates to the development of a silica capsule. Glyphosate is mentioned as the example chemical that demonstrates increased release rate with thinning of the capsule wall. Not relevant for 2022 ecotox renewal risk assessment.
893	Ecotoxicology	Lo C-C.	2010	Effect of pesticides on soil microbial community.	Journal of environmental science and health. Part. B, Pesticides, food contaminants, and agricultural wastes (2010), Vol. 45, No. 5, pp. 348-59	Conducted in China. Review of toxicity studies to look at the effect of glyphosate and other chemistry to soil microflora. As it's a review of other data it doesn't bring any specific endpoint to the Regulatory risk assessment of glyphosate renewal.
894	Ecotoxicology	Lopes da Silva E. T. et al.	2016	LETHAL CONCENTRATION OF GLYPHOSATE FOR JUVENILES OF CURIMATA-PACU. Original Title: CONCENTRACAO LETAL DO GLIFOSATO PARA JUVENIS DE CURIMATA-PACU.	Boletim Do Instituto De Pesca (2016), Vol. 42, No. 4, pp. 759-764	Concerns a formulation of Glyphosate (ATANOR®) that is not the representative formulation for the Annex I renewal.
895	Ecotoxicology	Lopes F. M. et al.	2018	Toxicity induced by glyphosate and glyphosate-based herbicides in the zebrafish hepatocyte cell line (ZF-L).	Ecotoxicology and environmental safety (2018), Vol. 162, pp. 201-207	The formulated product used in the test contains MON 2139 which contains POEA (MON0818). Therefore findings are not relevant to the EU level renewal as are not representative formulation for the Annex I renewal.
896	Ecotoxicology	Lopes F. M. et al.	2017	Glyphosate Adversely Affects Danio rerio Males: Acetylcholinesterase Modulation and Oxidative Stress.	Zebrafish (2017), Vol. 14, No. 2, pp. 97-105	Endpoints not relatable to an EU level ecotoxicology risk assessment for Annex I renewal.
897	Ecotoxicology	Lopes F. M. et al.	2014	Effect of glyphosate on the sperm quality of zebrafish Danio rerio.	Aquatic toxicology (2014), Vol. 155, pp. 322-6	Endpoint not used in EU level ecotoxicology risk assessment.

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898	Ecotoxicology	Louch J. et al.	2017	Potential risks to freshwater aquatic organisms following a silvicultural application of herbicides in Oregon's Coast Range.	Integrated environmental assessment and management (2017), Vol. 13, No. 2, pp. 396-409	This is a specific non-EU monitoring study that cannot be related to an EU level ecotoxicology risk assessment for Annex I renewal.
899	Ecotoxicology	Lozano V. L. et al.	2018	Effects of glyphosate and 2,4-D mixture on freshwater phytoplankton and periphyton communities: a microcosms approach	Ecotoxicology and Environmental Safety (2018), Vol. 148, pp. 1010-1019	The focus of the study was on phytoplankton and periphyton communities. However, no information on the source and history of the phytoplankton and periphyton communities are given. Due to the test materials not being the representative formulation for the EU renewal, the study is not relevant to the EU level Annex I ecotoxicology risk assessment. (The glyphosate formulation Glifosato Atanor® was used in the microcosm study). In addition, no regulatory useful endpoint was derived.
900	Ecotoxicology	Lyons M. et al.	2018	Effects of 4-nonylphenol and formulations of five pesticides: cypermethrin, deltamethrin, glyphosate, imidacloprid and mancozeb on growth of Atlantic salmon (Salmo salar L.) during parr-smolt transformation.	Canadian Technical Report of Fisheries and Aquatic Sciences (2018), Vol. 3265, pp. 1-42	Fish exposed to a glyphosate formulation that is not the representative formulation for the Annex I renewal.
901	Ecotoxicology	Ma J. et al.	2015	Alteration in the cytokine levels and histopathological damage in common carp induced by glyphosate.	Chemosphere (2015), Vol. 128, pp. 293-8	Endpoints not relatable to an EU level risk assessment for Annex I renewal.
902	Ecotoxicology	Ma J. et al.	2015	Immunological and histopathological responses of the kidney of common carp (Cyprinus carpio L.) sublethally exposed to glyphosate.	Environmental toxicology and pharmacology (2015), Vol. 39, No. 1, pp. 1-8	Molecular level results that are not relatable to an EU level ecotoxicology risk assessment.
903	Ecotoxicology	Ma J. et al.	2019	Biochemical and molecular impacts of glyphosate-based herbicide on the gills of common carp.	Environmental pollution (2019), Vol. 252, No. Pt B, pp. 1288-1300	Paper discusses biochemical and molecular impacts that are not relatable to an EU level RA for Annex I renewal
904	Ecotoxicology	Magano D. A. et al.	2013	Side-effects of herbicides applied in soybean Trichogramma pretiosum. Efeitos secundarios de herbicidas aplicados em soja sobre Trichogramma pretiosum.	Pesquisa Agropecuaria Gaucha (2013), Vol. 19, No. 1/2, pp. 69-80	The formulations used that contain glyphosate were Glyphosate Atanor and Roundup Original. The Roundup formulation contains POEA and is therefore not relevant for the EU. Concerning ATANOR, this is not the representative formulation and it is difficult to relate the observed effects with the ecotoxicology risk assessment for EU Annex I renewal of MON 52276.
905	Ecotoxicology	Magbanua F. S. et al.	2013	Understanding the combined influence of fine sediment and glyphosate herbicide on stream periphyton communities.	Water research (2013), Vol. 47, No. 14, pp. 5110-20	This study investigated the combination of sediment and glyphosate effects on an mesocosm community. Results not relatable to an EU level ecotoxicological risk assessment.
906	Ecotoxicology	Magbanua F. S. et al.	2013	Individual and combined effects of fine sediment and the herbicide glyphosate on benthic macroinvertebrates and stream ecosystem function	Freshwater biology (2013), Vol. 58, No. 8, pp. 1729-1744	Paper describes a specific multiple mesocosm study conducted in New Zealand using an undefined source of glyphosate.

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907	Ecotoxicology	Malecot M. et al.	2013	Specific proteomic response of Unio pictorum mussel to a mixture of glyphosate and microcystin-LR.	Journal of proteome research (2013), Vol. 12, No. 11, pp. 5281-92	Observed findings are not relatable to an EU level ecotoxicological risk assessment for Annex I purposes.
908	Ecotoxicology	Mandl K. et al.	2018	Effects of Glyphosate-, Glufosinate- and Flazasulfuron-Based Herbicides on Soil Microorganisms in a Vineyard.	Bulletin of environmental contamination and toxicology (2018), Vol. 101, No. 5, pp. 562-569	The product used was Roundup Powerflex, which is based on MON 79351 that contains 47.6% acid equivalence, and not MON 52276. Endpoints based on bacterial CFUs are difficult to relate to an ecotoxicological Annex I risk assessment. The work was also conducted in a vineyard that had a history of other pesticides being used. As identified by the Author, this cannot be excluded as having influenced the findings.
909	Ecotoxicology	Alvarez M. et al.	2012	Toxicity in fishes of herbicides formulated with glyphosate	Acta Toxicologica Argentina (2012), Vol. 20, No. 1, pp. 5-13	Two formulations and a test solution prepared using technical material were used. The two formulations were glacoxan and Roundup. The Roundup contains POEA and therefore is not relevant to the EU. The Glacoxan is a home and garden use formulation that is not related to the representative formulation. It is therefore not relevant to an EU level risk assessment for the Annex I renewal.
910	Ecotoxicology	Maria M. A. et al.	2018	Evaluation of glyphosate effect concentration to control Eichhornia crassipes and Salvinia sp. Avaliacao da concentracao de efeito do glifosato para controle de Eichhornia crassipes e Salvinia sp.	Engenharia Sanitaria e Ambiental (2018), Vol. 23, No. 5, pp. 881-889	On translated paper review, it is apparent that the study was conducted with a formulation (Roundup Original) that contains POEA - uncertain if observed effects were due to product or down to the action of POEA. POEA is not in the Annex I representative formulation and therefore these findings are not relevant to the ecotoxicology risk assessment for renewal.
911	Ecotoxicology	Martin L. J. et al.	2013	A preliminary assessment of the response of a native reptile assemblage to spot-spraying invasive Bitou Bush with glyphosate herbicide.	Ecological Management & Restoration (2013), Vol. 14, No. 1, pp. 59-62	NON-EU long term monitoring site, therefore non-relatable to EU level ANNEX I renewal.
912	Ecotoxicology	Marusca T.	2017	Oversowing or resowing of subalpine grassland appointed after the dynamics of floristic composition.	Romanian Journal of Grassland and Forage Crops (2017), No. 15, pp. 45-55	Study describes ecological succession and not specific effects of glyphosate on NTOs, therefore not relevant to EU level Annex I ecotoxicology risk assessment.
913	Ecotoxicology	Mateos-Naranjo E. et al.	2013	Effects of sub-lethal glyphosate concentrations on growth and photosynthetic performance of non-target species Bolboschoenus maritimus.	Chemosphere (2013), Vol. 93, No. 10, pp. 2631-8	End-points not considered relevant to an EU level risk assessment (ecotoxicology) for Annex I renewal.
914	Ecotoxicology	Matozzo V. et al.	2018	Ecotoxicological risk assessment for the herbicide glyphosate to non-target aquatic species: A case study with the mussel Mytilus galloprovincialis.	Environmental pollution (2018), Vol. 233, pp. 623-632	No control data are presented. The concept of up and down-regulation of genes following exposure to glyphosate within the context of a risk assessment is not relatable to the EU renewal. The purity of the test substance is not presented so dosing cannot be confirmed. The environmental conditions of the exposure phase are not presented other than salinity and temperature. No positive control included.