

AESC 30160

Agrochemicals and Environment

Individual literature research projects

Spring 2021

Written report on a topic related to Agrochemicals and Environment

Students in the module Agrochemicals and Environment will prepare a topical written research project. The exercise will give students an opportunity to gain essential skills related to the application of knowledge from a specialized field; formulating complex reports; capturing and critically evaluating information from diverse sources including the internet, peer-reviewed and grey literature; and communicating science through written form.

For the exercise, students will prepare a written report as follows:

- a) Title page indicating project title, subject details and full name and [student] number of the student.
- b) An abstract of not more than 150 words.
- c) An introductory section of not more than 300 words that outlines the information structure/flow of the project. The section should delimit the bounds of the project (subject, geographical, temporal, etc.), the concepts of interest to the project, the overall objective of the project, and a brief introduction to the methods applied.
- d) A methods section that explains how information was gathered. For example, if using Web of Science or Google Scholar, what were the search terms used, how many records were returned, and what were the criteria for including or rejecting information from different records/papers. The methods section should be no more than 150 words.

- e) The main body of the report. This should be no more than 2000 words long and should include sections that expand on information presented in the introductory section.
- f) A short <150 words section that brings together and synthesizes the information presented in the report as ‘conclusions’ and presents consequent ‘recommendations’ for an identifiable target audience.
- g) A bibliography properly referenced using referencing tools such as EndNote and the Harvard referencing system.

The full report will be about 2500 words.

Project topics

A list of potential topics will be circulated during your first week of lectures. By week 2, each student should choose his/her topic and communicate this to the lecturer. If a student feels that they are passionate about a topic that does not appear on the list but has clear relations to some aspect of Agrochemicals and Environment, then the idea can be communicated to the relevant lecturer for possible consideration. To avoid too much overlap in project topics, the lecturer may indicate that a topic is already saturated and request that the student choose one of the remaining topics. In such a case, students that communicated their choice of topic early will be given priority for popular topics.

Including figures and tables

Students can apply as many diagrams, graphs or tables as necessary to clearly convey information. Inclusion of at least three figures and three tables is recommended. These should be original. Original diagrams and graphs include schematic diagrams that make reference to the specific project (for example, a project about the effects of pesticide baits on raptors might summarize the numbers of reports in online media sources from different regions, or for different birds, within temporal bounds).

Diagrams and figures should be neatly drawn by hand or using computer tools (preferable) such as PowerPoint, Paint, Paint 3D, etc. Hand drawn diagrams will be scanned and inserted into the report as a digital image. Students may also include original photographs that clearly support the discourse of the project. Non-original figures can also be included from duly referenced sources.

Figures and tables should be cited in the main text as follows: (Fig. 1; Table 1)

The figures and tables should be inserted into the main body of the report between the first citing paragraph and the subsequent paragraph.

Figures should include clear legends (i.e., FIGURE 1: Use of glyphosate in Ireland between 2000 and 2020 based on data from the Irish Department of Agriculture and Food (2021)).

Tables should have a clear heading as follows: TABLE 1: List of Herbicide products used in different grassland and forage crops according to the Irish Department of Agriculture and Food (2021)). Tables should have at least 2 columns and 2 rows of information.

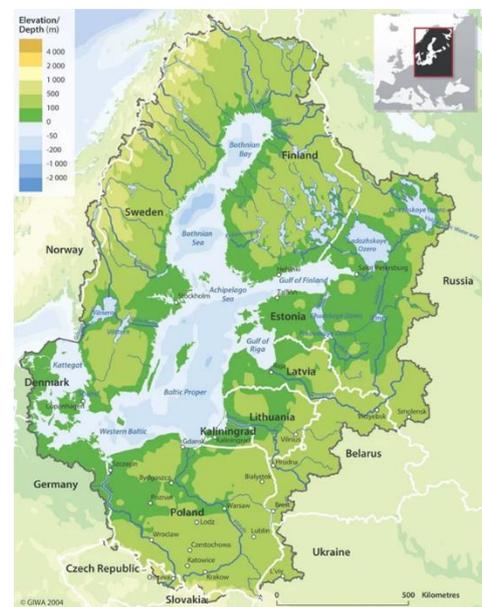
Information can also be presented together with tables and figures in information boxes. An information box explains some aspect of the project that adds new and interesting information in the form of a case study to help the reader gain a fuller understanding of the topic. This might include for example, a report based on newspaper sources of a pesticide spill. An information box is normally surrounded by a distinct frame, includes a title and may include graphs, tables or images. Figure 1 is an example of an information box. A Project should not contain more than 2 information boxes.

BOX 1: Pesticide contamination of Norwegian farmed salmon

Reports of high levels of pesticide-related contamination in Norwegian farmed salmon have led to investigation by the National Institute of Nutrition and Seafood Research, together with the University of Copenhagen, Denmark, into chemical contaminants in salmon fillets between 1999 and 2011.

In a report by Nøstbakken et al. (2015), the levels of dioxins, PCBs, heavy metals and organochlorine pesticides in Norwegian farmed salmon have steadily declined over the 13-year study period. Based on information in the report, weekly allowable consumption rates of farmed salmon have increased from 500g per person in the early 2000s to 1.5Kg per person in 2011.

The reduction in contamination has been attributed to a shift in the source ingredients for fish food from marine-derived to a blend of marine and vegetable feed ingredients (Sanden et al., 2016). Marine ingredients derived from the Baltic Sea, including sand eels have been associated with high levels of pesticide contamination as the Baltic watershed receives run-off from industry and farms in Scandinavia, Russia, Poland and the Baltic States.



The Baltic Catchment (image from Mörtz et al., 2007)

FIGURE 1: Example of an ‘information box’.

Figure numbering, font type and size and referencing formats should be consistent throughout the report – furthermore, information should not be repeated between different individual report sections or duplicated in tables and figures.

Referencing information sources

References should be correctly cited in the report text using the HARVARD format, as follows:

(Byrne et al., 2018) for a single citation of the paper by Byrne and co-authors (below).

(Preston, 1995) for a single citation of the paper by Preston (below).

(Preston, 1995; Byrne et al., 2018; Oliveira et al., 2019) for citation of multiple papers – note that these are cited in first chronological and then alphabetical order.

The bibliography should be included under the heading ‘References’ using the Harvard format as indicated below.

For a paper:

BYRNE, R., SPINK, J., FRECKLETON, R., NEVE, P. & BARTH, S. 2018. A critical review of integrated grass weed management in Ireland. *Irish Journal of Agricultural and Food Research*, 57, 15-28.

OLIVEIRA, S. C. C., KLEBER Z ANDRADE, C., VARELA, R. M., MOLINILLO, J. M. & MACÍAS, F. A. 2019. Phytotoxicity study of ortho-disubstituted disulfides and their acyl derivatives. *ACS Omega*, 4, 2362-2368.

For a book:

PRESTON, C. D. 1995. *Pondweeds of Great Britain and Ireland*. Botanical Society of the British Isles, Lancaster, UK.

For a webpage:

IPCC, 2014. *Climate Change 2014: Synthesis Report*. Intergovernmental Panel on Climate Change. URL:www.ipcc.ch/site/assets/uploads/2018/05/SYR_AR5_FINAL_full_wcover.pdf (accessed January 2021).

Avoid using webpages, newspaper articles, unpublished reports or social media reports, including blogs, as much as possible. If popular media reports are included – these should form part of the supporting information to outline or emphasize a point or concept. For example, references to newspaper reports can be listed in an original table with sources included on the table (i.e., The Irish Times, 15 March 2020). References to non-scientific materials should not be included in the bibliography.

Final formatting

The project title should be presented on the title page in Times New Roman – size 20 font bold with author names and details in Times New Roman – size 16 normal font.

The main body of the report should be presented using Times New Roman – size 12 font.

Project sections can be indicated using bold font (Times New Roman – size 12 bold).

The text should appear as 1.5 spacing throughout the document. All text should be aligned to the left.

This present document can be used as an example for formatting.

Overall marking

This written project will constitute 60% of the students' overall marks for the subject. The marking structure for the project report is indicated in the associated rubric (below).

Project support and feedback

Students are encouraged to communicate with lecturers after the students has outlined a structure and initiated some research for their designated project. The lecturer will help orient the student in preparing the report and may outline gaps in the project, or supply supporting information.

For queries on the formatting of the project, deadlines or extensions to deadlines – including extenuating circumstances, students should contact the module coordinator. Students should each have at least one online meeting with a module lecturer. Students can also ask for group meetings if preferred.

Appendix 1 - Assessment of individual written project

Component	Size	Grade						Score of 100
		F	D	C	B	A	A+	
Abstract	≤150 words	There is no abstract	The abstract is included but poorly summarises the document	The abstract presents a good summary of the abstract	The abstract presents an excellent summary of the abstract that includes the conclusions or recommendations	The abstract presents an excellent summary of the document in brief and simple language	The abstract presents an excellent summary of the document in brief and simple language drawing attention to methods, main findings and recommendations in a flowing manner	10
Introduction	≤300 words	The introduction does not fulfill any purpose, it is lacking, is unclear, or indistinguishable in terms of content from the remainder of the document	The introduction is unclear as to the purpose of the document	The introduction introduces the reader to the purpose of the document, but is unclear	The introduction introduces the reader to the purpose of the document, but lacks clarity in some areas	The introduction is clear and concise; it clearly outlines the purpose of the document and introduces the reader to methods applied	The introduction is clear, concise, purposeful without errors of orthography and grammar	10
Research method	≤150 words	There is no inclusion of research methods	The author presents a general account of the research approach, but does not indicate the methods used	Methods are presented but lack key details (i.e., search terms, search engines, search criteria, etc.)	Methods are presented and generally include sufficient details to allow the reader to assess information quality	The main body of the text includes a clear and brief description of the research methods applied (i.e., how information was sourced, selection criteria for inclusion of information, numbers of documents accessed and search engines used)	The author includes a clear and brief description of the methods applied, and includes some novel method (i.e., paper counts, novel metrics, statistical analyses, etc.)	10
Main body	≤2000 words	The main text lacks coherences, is largely unsubstantiated and leads to no apparent conclusions or consequences	The main text includes adequate information relative to the title, but is not purposeful and leads to no solid conclusions or consequences	The main text is generally purposeful and includes adequate information relative to the project title, but is weak in more than 2 areas	The main text is generally purposeful building and argument and guiding the reader toward conclusions and recommendations, but it is weak in at least 2 areas, either under-referenced or unsubstantiated	The main text is purposeful, it builds an argument and clearly guides the reader toward a supported conclusion and consequent recommendation. The text applies well-chosen examples to support arguments and is sufficiently clear and concise to convince readers	The main text is purposeful, it builds argument and resolution and strongly supports the ultimate conclusions and recommendations; the author demonstrates enthusiasm and interest and is highly credible	30
Conclusions and recommendations	≤150 words	The conclusions do not lead naturally from the main text	The conclusions are generally weak and largely unsubstantiated	The conclusions are largely substantiated	The conclusions are clear and substantiated	The conclusions are clear, substantiated and lead to clear recommendations	The conclusion and recommendations are strong - they are brief, clear and include some novelty	10
Bibliography	≥15 sources	No references included, or fewer references than necessary are included	Under-referenced (much of the information is without a source) and referencing format is incorrect	References are cited, and most citations link up with the bibliography	All references are cited and included in the bibliography	All references are correctly cited and included in the bibliography in the correct referencing format	There are no errors in citation and referencing	5
Tables	3-5 Tables	Includes no tables, or any tables that are included are insufficiently linked to the text	Tables are informative but poorly linked to the text and are either unnecessary or distracting	Tables are included, these are informative but are incorrectly cited, formatted and lack references	Tables are included, but are either incorrectly cited and formatted, or lack references	Tables are used to reduce text while presenting supporting information to strengthen arguments in the text. Tables are correctly cited and correctly formatted and information in the tables is correctly referenced	At least one large table or two small tables include original data	10
Figures	3-5 Figures	Figures are not linked to the text, they are inadequately explained and are unhelpful or distracting	Figures are not linked to the text, or are inadequately explained, but they are correctly cited, formatted and referenced	Figures are generally good, but at least two of the figures are non-essential, this includes redundancy of information (i.e., same information in tables and figures)	Figures are generally good, but are incorrectly cited or referenced. Information on sources of data is missing.	Figures are used to reduce text and to highlight trends or patterns (i.e., time-series, geographical, etc.). Figures are neat, are correctly cited and referenced, or source information is clearly defined	At least two of the figures are original	10
Formatting		No adherence to guidelines or adheres to only one of the formatting rules	Has adhered to at least two aspects of formatting	Is generally correct with formatting, but has more than two aspects incorrect	Is correct in most of the formatting, but has more than two aspects of formatting incorrect	Uses correct font (type and size), correct spacing and proper insertion of graphs and tables with numbering in order	Tables, figures and headings are highly consistent throughout the document (i.e., figures use same colours, fonts, etc.)	5