



Brussels, 15.6.2016
SWD(2016) 211 final

PART 8/16

COMMISSION STAFF WORKING DOCUMENT

IMPACT ASSESSMENT

Defining criteria for identifying endocrine disruptors in the context of the implementation of the plant protection products regulation and biocidal products regulation

Annex 7 out of 16

Accompanying the document

**COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN
PARLIAMENT AND THE COUNCIL**

on endocrine disruptors and the draft Commission acts setting out scientific criteria for their determination in the context of the EU legislation on plant protection products and biocidal products

{ COM(2016) 350 final }
{ SWD(2016) 212 final }

ANNEX 7

THE MULTI-CRITERIA ANALYSIS: RESULTS

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This Annex focuses on the assessment of potential impacts, which build on the results of the screening study explained in Annexes 3 to 5. The results of the screening do not constitute evaluations of individual substances to be carried out under the respective chemical legislations [Regulation (EC) No 1107/2009 on plant protection products and Regulation (EU) No 528/2012 on biocidal products] and in no way prejudge future decisions on active substances to be taken pursuant to these two Regulations. It would thus be erroneous to consider that the substances listed in Annex 5 are considered as endocrine disruptors within the meaning of the EU legislation. The methods and results presented in this Annex are to be interpreted as an estimation of the potential impacts.

The MCAs results are not concluding on any preferred option for setting scientific criteria to identify endocrine disruptors, but aim at providing additional information to decision makers with regards to the potential impacts expected when implementing the criteria, after those would have been selected on the basis of science (two MCAs were performed: Options 1 to 4 under the current regulatory context, and Options A compared to Options B and C).

At a preliminary stage of the impact assessment it was anticipated that Option C should be discarded, nevertheless it was maintained for the analysis of the impacts for methodological reasons (see Section 4.2.3 of the main report and Annexes 6 and 7). Option C only applies to the PPP Regulation.

1. INTRODUCTION

As set out in Annex 6, a Multi Criteria Analysis (MCA) was performed to compare Options 1 to 4 (Aspect I, EU criteria to identify endocrine disruptors (EDs)) and Options A to C (Aspect II, Approaches to regulatory decision making).

The options were compared under different scenarios in order to ascertain how different weights could have affected the overall ordering of the options:

1. **SCENARIO 1 - HOMOGENITY:** equal weights were assigned to all dimensions. For the weights of the MCA-criteria within each dimension, two sub-scenarios were considered:
 - i) **1/A:** within each dimension, equal weights were assigned to each MCA-criterion;
 - ii) **1/B:** within each dimension, higher weights were assigned to those MCA-criteria for which the availability of data/evidence was considered to be higher, while equal weights were assigned to those MCA-criteria for which data/evidence available was thought to be insufficient to discriminate.
2. **SCENARIO 2 - PRIORITY TO EVIDENCE:** different weights were assigned to the dimensions depending on the overall availability of data/evidence. Within each dimension, higher weights were assigned to those MCA-criteria for which the availability of data/evidence was considered to be higher, while equal weights were assigned to those MCA-criteria for which data/evidence available was thought to be insufficient to discriminate.
3. **SCENARIO 3 – PRIORITY TO HEALTH AND ENVIRONMENT:** equal weights were assigned to the dimensions Health and Environment, in light of the precautionary principle set out in article 191 of the Treaty on the Functioning of the EU. Decreasing weights were assigned to the remaining dimensions depending on the overall availability of data/evidence. Within each dimension, higher weights were assigned to those MCA-criteria for which the availability of data/evidence was considered to be higher, while equal weights were assigned to those MCA-criteria for which data/evidence available was thought to be insufficient to discriminate.
4. **SCENARIO 4 - HEALTH FIRST:** the highest weight was assigned to the dimension Health. The remaining dimensions were assigned a weight dependent on the overall availability of data/evidence. Within each dimension, higher weights were assigned to those MCA-criteria for which the availability of data/evidence was considered to be higher, while equal weights were assigned to those MCA-criteria for which data/evidence available was thought to be insufficient to discriminate.
5. **SCENARIO 5 – AIM: EXPOSURE ZERO:** this scenario examines what would be the effect considering a regulatory decision making which aims at completely reducing exposure to chemicals and as a consequence is based on hazard and does not consider risk assessment. Scenarios 3 (priority to health and environment) and 4 (Health first) were used as starting points. Additionally, sub scenarios were developed

which increase the weight assigned to Health. The resulting 4 sub-scenarios are described as follows:

- i) **5/A:** as scenario 3 + Hazard based decision making;
- ii) **5/B:** as scenario 3 + Hazard based decision making + increase of the weight assigned to Health (from 0,20 to 0,40) at the expenses of the other dimensions excluding Environment. Further, 50% of the overall weight for Human Health (0,40) was assigned to the criterion "hormone related diseases and disorders" and the remaining 50% was split equally between the other two MCA-criteria of the dimension Human Health (in all other scenarios considered, equal weights were assigned to the Human Health MCA-criteria as data/evidence available was considered to be insufficient to discriminate among them). This scenario is consequently giving the highest weight to ED related issues on human health (20%) and environment (13.4%), amounting to 33.4 % of the total weight.
- iii) **5/C:** as scenario 4 + Hazard based decision making;
- iv) **5/D:** as scenario 4 + Hazard based decision making + an increase of the weight assigned to Health (from 0,25 to 0,40) at the expenses of the other dimensions.

For the purpose of the sensitivity analysis, additional simulations were run under Scenario 5/B (Aim: exposure zero) in order to evaluate when the policy ranking of the options would change.

In this annex, the tabular results are presented:

- overview of weights assigned to the MCA criteria and dimensions according to the different scenarios considered (sensitivity analysis, Table 1);
- performance of the options 1,2,3 and 4, and options A, B, and C.
- weighted performance matrices (multiplication of the performance and weights), giving composite quantities which allow each policy option to be compared and ranked for each criterion (Sections 2 and 3);
- outranking matrices and policy ranking permutations. Outranking matrices summarise how each option compared against another for all possible pairs of policy options. Policy ranking permutations allow selecting the policy options which maximise pair-wise agreement - and minimise disagreement (Sections 4 and 5);
- summary overview of the results (Section 6).

Table 1. Overview of weights assigned to the MCA criteria according to the different scenarios (sensitivity analysis)

		SCENARIO 1 HOMOGENITY		SCENARIO 2 PRIORITY TO EVIDENCE	SCENARIO 3 PRIORITY TO HEALTH AND ENVIRONMENT	SCENARIO 4 HEALTH FIRST	SCENARIO 5 AIM: EXPOSURE ZERO				Qualitative assessment of evidence	
		A	B				A	B	C	D		
IMPACTS	Dimensions and criteria ¹	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight	Weight		
EFFECTIVENESS & COHERENCE	Effectiveness & coherence	0,167	0,167	0,18	0,16	0,16	0,16	0,11	0,16	0,13		
	Legal certainty and proportionality	0,042	0,033	0,036	0,032	0,032	0,032	0,022	0,032	0,026	0,20	
	Operability for regulatory decision making	0,042	0,033	0,036	0,032	0,032	0,032	0,022	0,032	0,026	0,20	
	Coherence between BP and PPP legislation	0,042	0,050	0,054	0,048	0,048	0,048	0,033	0,048	0,039	0,30	
	Compliance with international obligations of the EU	0,042	0,050	0,054	0,048	0,048	0,048	0,033	0,048	0,039	0,30	
EFFICIENCY	Sectorial competitiveness: EU agriculture	0,167	0,167	0,21	0,17	0,19	0,17	0,12	0,19	0,16		
	Number of PPP affected	0,056	0,083	0,105	0,085	0,095	0,085	0,060	0,095	0,080	0,50	
	Crops affected	0,056	0,050	0,063	0,051	0,057	0,051	0,036	0,057	0,048	0,30	
	Existence of alternatives / risk of resistance of pests	0,056	0,033	0,042	0,034	0,038	0,034	0,024	0,038	0,032	0,20	
	Sectorial competitiveness: PPP, BP and related industries	0,167	0,167	0,12	0,09	0,08	0,09	0,04	0,08	0,05		
	Functioning of the single market	0,056	0,056	0,040	0,030	0,027	0,030	0,013	0,027	0,017	0,33	
	Innovation and research	0,056	0,056	0,040	0,030	0,027	0,030	0,013	0,027	0,017	0,33	
	SME's	0,056	0,056	0,040	0,030	0,027	0,030	0,013	0,027	0,017	0,33	
	International trade	0,167	0,167	0,22	0,180	0,20	0,180	0,13	0,20	0,17		
	Import of food	0,056	0,058	0,077	0,063	0,070	0,063	0,046	0,070	0,060	0,35	
	Import of feed	0,056	0,058	0,077	0,063	0,070	0,063	0,046	0,070	0,060	0,35	
	Import of treated articles	0,056	0,050	0,066	0,054	0,060	0,054	0,039	0,060	0,051	0,30	
	Social	Human Health	0,167	0,167	0,13	0,20	0,25	0,20	0,40	0,25	0,40	
		Hormone related diseases and disorders	0,056	0,056	0,043	0,067	0,083	0,067	0,20	0,083	0,133	0,33 ²
		Food safety	0,056	0,056	0,043	0,067	0,083	0,067	0,10	0,083	0,133	0,33
		Transmissible diseases caused by lack of appropriate disinfectants or insecticides	0,056	0,056	0,043	0,067	0,083	0,067	0,10	0,083	0,133	0,33
	Environment	Environment	0,167	0,167	0,14	0,20	0,12	0,20	0,20	0,12	0,09	
Chemical quality of water		0,056	0,056	0,047	0,067	0,040	0,067	0,067	0,040	0,030	0,33	
Wildlife vertebrate populations		0,056	0,056	0,047	0,067	0,040	0,067	0,067	0,040	0,030	0,33	
Animal welfare		0,056	0,056	0,047	0,067	0,040	0,067	0,067	0,040	0,030	0,33	

¹ Note that some criteria names have been abbreviated. See Table 1 in Annex 6 or Table 3 in the main report for complete titles for the criteria.

² Scenario 5/B, assigns 50% of the overall weight for Human Health (0,40) to "hormone related diseases and disorders" and split the remaining 50% equally between the other two MCA-criteria of Human Health. In all other scenarios, equal weights are assigned to these 3 MCA-criteria as data/evidence available was considered insufficient to discriminate among them. This scenario is thus giving the highest weight to ED related issues on human health (20%) and environment (13.4%).

Table 2. Performance of Option 1, 2, 3 and 4.

		PERFORMANCE OF OPTION 1, 2, 3, AND 4				
		Best performing		Worst performing		
Dimensions/Criteria		40	30	20	10	
Effectiveness	Horizontal	Horizontal (effectiveness/coherence)				
		Legal certainty and proportionality	4 > 2	1 > 3		
		Operability for regulatory decision making	4 > 2	1 > 3		
		Coherence between BP and PPP legislation	4 > 2 / 3	> 1		
Coherence	Horizontal	Compliance with international obligations	4 > 2 / 3	/ 1		
		Sectorial competitiveness: EU agriculture				
		Number of PPPs affected	4 > 1	2 / 3		
		Crops affected	4 > 1	2 / 3		
Efficiency	Economic	Existence of alternatives/risk of resistance of pests	4 > 2 / 3	> 1		
		Sectorial competitiveness: PPP, BP and related industries				
		Functioning of the single market	4 > 2 / 3	> 1		
		Innovation and research	4 > 2 / 3	> 1		
		SME's	4 > 2 / 3	> 1		
		International trade				
		Import of food	4 > 1 / 2	/ 3		
		Import of feed	4 > 2 / 3	> 1		
		Import of treated articles	4 > 2 / 3	> 1		
		Social	Human Health			
			Hormone related chronic diseases	2 / 3 / 4	> 1	
			<i>Hormone related chronic diseases [exposure zero]</i>	2 / 3 > 4	> 1	
			Transmissible diseases	4 > 2 / 3	> 1	
			Food safety	4 > 2 / 3	> 1	
		Environmental	Environment			
			Chemical quality of water	1 > 2 / 3	> 4	
Wildlife vertebrate populations	2 / 3 / 4		> 1			
<i>Wildlife vertebrate populations [exposure zero]</i>	2 / 3 > 4		> 1			
Animal welfare	1 / 2 / 4		> 3			

Table 3. Performance of Option A, B and C.

PERFORMANCE OF OPTION A, B, AND C							
Dimensions/Criteria		Best performing		Worst performing			
		30	20	10			
Effectiveness	Horizontal	Horizontal (effectiveness/coherence)					
		Legal certainty and proportionality	C	>	B	>	A
		Operability for regulatory decision making	C	>	B	>	A
		Coherence between BP and PPP legislation	C	>	B	>	A
Coherence		Compliance with international obligations	B	/	C	>	A
Efficiency	Economic	Sectorial competitiveness: EU agriculture					
		Number of PPPs affected	C	>	B	>	A
		Crops affected	C	>	B	>	A
		Existence of alternatives/risk of resistance of pests	C	>	B	>	A
		Sectorial competitiveness: PPP, BP and related industries					
		Functioning of the single market	C	>	B	>	A
		Innovation and research	C	>	B	>	A
		SME's	C	>	B	>	A
		International trade					
		Import of food	C	/	B	>	A
	Import of feed	C	/	B	>	A	
	Import of treated articles	non applicable for BP					
	Social	Human Health					
		Hormone related chronic diseases	A	/	B	>	C
		<i>Hormone related chronic diseases [exposure zero]</i>	A	>	B	>	C
		Transmissible diseases	non applicable for BP				
		Food safety	C	>	B	>	A
	Environmental	Environment					
		Chemical quality of water	A	/	B	>	C
		<i>Chemical quality of water [exposure zero]</i>	A	>	B	>	C
Wildlife vertebrate populations		A	/	B	>	C	
<i>Wildlife vertebrate populations [exposure zero]</i>		A	>	B	>	C	
Animal welfare		A	/	B	/	C	

2. WEIGHTED PERFORMANCE MATRICES: ASPECT I - SETTING SCIENTIFIC CRITERIA TO IDENTIFY EDs

1.1. Table 4 and 5. Scenario 1 - Homogeneity

Table 4. Sub scenario 1/A

		SCENARIO 1/A - HOMOGENITY									
Dimension	Dimension weight	Criteria	Criteria weight	Options							
				Option 1		Option 2		Option 3		Option 4	
				Performance	Weighted P	Performance	Weighted P	Performance	Weighted P	Performance	Weighted P
Effectiveness and coherence	0,17	Legal certainty and proportionality	0,042	20	0,83	30	1,25	10	0,42	40	1,67
		Operability for regulatory decision making	0,042	20	0,83	30	1,25	10	0,42	40	1,67
		Coherence between BP and PPP legislation	0,042	10	0,42	20	0,83	20	0,83	40	1,67
		Compliance with international obligations of the EU	0,042	10	0,42	10	0,42	10	0,42	40	1,67
Sectorial competitiveness: EU agriculture	0,17	Number of PPP affected	0,056	30	1,67	10	0,56	10	0,56	40	2,22
		Crops affected	0,056	30	1,67	10	0,56	10	0,56	40	2,22
		Existence of alternatives / risk of resistance of pests	0,056	10	0,56	20	1,11	20	1,11	40	2,22
Sectorial competitiveness: PPP, BP and related industries	0,17	Functioning of the single market	0,056	10	0,56	20	1,11	20	1,11	40	2,22
		Innovation and research	0,056	10	0,56	20	1,11	20	1,11	40	2,22
		SME's	0,056	10	0,56	20	1,11	20	1,11	40	2,22
International trade	0,17	Import of food	0,056	10	0,56	10	0,56	10	0,56	40	2,22
		Import of feed	0,056	10	0,56	20	1,11	20	1,11	40	2,22
		Import of treated articles	0,056	10	0,56	20	1,11	20	1,11	40	2,22
Human Health	0,17	Hormone related diseases and disorders	0,056	10	0,56	20	1,11	20	1,11	20	1,11
		Transmissible diseases caused by lack of appropriate disinfectants or insecticides	0,056	10	0,56	20	1,11	20	1,11	40	2,22
		Food safety	0,056	10	0,56	20	1,11	20	1,11	40	2,22
Environment	0,17	Chemical quality of water	0,056	40	2,22	20	1,11	20	1,11	10	0,56
		Wildlife vertebrate populations	0,056	10	0,56	20	1,11	20	1,11	20	1,11
		Animal welfare	0,056	20	1,11	20	1,11	10	0,56	20	1,11

Table 5. Sub scenario 1/B

SCENARIO 1/B - HOMOGENITY											
Dimension	Dimension weight	Criteria	Criteria weight	Options							
				Option 1		Option 2		Option 3		Option 4	
				Performance	Weighted P	Performance	Weighted P	Performance	Weighted P	Performance	Weighted P
Effectiveness and coherence	0,17	Legal certainty and proportionality	0,033	20	0,67	30	1,00	10	0,33	40	1,33
		Operability for regulatory decision making	0,033	20	0,67	30	1,00	10	0,33	40	1,33
		Coherence between BP and PPP legislation	0,050	10	0,50	20	1,00	20	1,00	40	2,00
		Compliance with international obligations of the EU	0,050	10	0,50	10	0,50	10	0,50	40	2,00
Sectorial competitiveness: EU agriculture	0,17	Number of PPP affected	0,083	30	2,50	10	0,83	10	0,83	40	3,33
		Crops affected	0,050	30	1,50	10	0,50	10	0,50	40	2,00
		Existence of alternatives / risk of resistance of pests	0,033	10	0,33	20	0,67	20	0,67	40	1,33
Sectorial competitiveness: PPP, BP and related industries	0,17	Functioning of the single market	0,056	10	0,56	20	1,11	20	1,11	40	2,22
		Innovation and research	0,056	10	0,56	20	1,11	20	1,11	40	2,22
		SME's	0,056	10	0,56	20	1,11	20	1,11	40	2,22
International trade	0,17	Import of food	0,058	10	0,58	10	0,58	10	0,58	40	2,33
		Import of feed	0,058	10	0,58	20	1,17	20	1,17	40	2,33
		Import of treated articles	0,050	10	0,50	20	1,00	20	1,00	40	2,00
Human Health	0,17	Hormone related diseases and disorders	0,056	10	0,56	20	1,11	20	1,11	20	1,11
		Transmissible diseases caused by lack of appropriate disinfectants or insecticides	0,056	10	0,56	20	1,11	20	1,11	40	2,22
		Food safety	0,056	10	0,56	20	1,11	20	1,11	40	2,22
Environment	0,17	Chemical quality of water	0,056	40	2,22	20	1,11	20	1,11	10	0,56
		Wildlife vertebrate populations	0,056	10	0,56	20	1,11	20	1,11	20	1,11
		Animal welfare	0,056	20	1,11	20	1,11	10	0,56	20	1,11

1.2. Table 6. Scenario 2 - Priority to evidence

		SCENARIO 2 - PRIORITY TO EVIDENCE									
Dimension	Dimension weight	Criteria	Criteria weight	Options							
				Option 1		Option 2		Option 3		Option 4	
				Performance	Weighted P	Performance	Weighted P	Performance	Weighted P	Performance	Weighted P
Effectiveness and coherence	0,18	Legal certainty and proportionality	0,036	20	0,72	30	1,08	10	0,36	40	1,44
		Operability for regulatory decision making	0,036	20	0,72	30	1,08	10	0,36	40	1,44
		Coherence between BP and PPP legislation	0,054	10	0,54	20	1,08	20	1,08	40	2,16
		Compliance with international obligations of the EU	0,054	10	0,54	10	0,54	10	0,54	40	2,16
Sectorial competitiveness: EU agriculture	0,21	Number of PPP affected	0,105	30	3,15	10	1,05	10	1,05	40	4,20
		Crops affected	0,063	30	1,89	10	0,63	10	0,63	40	2,52
		Existence of alternatives / risk of resistance of pests	0,042	10	0,42	20	0,84	20	0,84	40	1,68
Sectorial competitiveness: PPP, BP and related industries	0,12	Functioning of the single market	0,040	10	0,40	20	0,80	20	0,80	40	1,60
		Innovation and research	0,040	10	0,40	20	0,80	20	0,80	40	1,60
		SME's	0,040	10	0,40	20	0,80	20	0,80	40	1,60
International trade	0,22	Import of food	0,077	10	0,77	10	0,77	10	0,77	40	3,08
		Import of feed	0,077	10	0,77	20	1,54	20	1,54	40	3,08
		Import of treated articles	0,066	10	0,66	20	1,32	20	1,32	40	2,64
Human Health	0,13	Hormone related diseases and disorders	0,043	10	0,43	20	0,87	20	0,87	20	0,87
		Transmissible diseases caused by lack of appropriate disinfectants or insecticides	0,043	10	0,43	20	0,87	20	0,87	40	1,73
		Food safety	0,043	10	0,43	20	0,87	20	0,87	40	1,73
Environment	0,14	Chemical quality of water	0,047	40	1,87	20	0,93	20	0,93	10	0,47
		Wildlife vertebrate populations	0,047	10	0,47	20	0,93	20	0,93	20	0,93
		Animal welfare	0,047	20	0,93	20	0,93	10	0,47	20	0,93

1.3. Table 7. Scenario 3 - Priority to health and environment

SCENARIO 3 - PRIORITY TO HEALTH and ENVIRONMENT											
Dimension	Dimension weight	Criteria	Criteria weight	Options							
				Option 1		Option 2		Option 3		Option 4	
				Performance	Weighted P	Performance	Weighted P	Performance	Weighted P	Performance	Weighted P
Effectiveness and coherence	0,16	Legal certainty and proportionality	0,032	20	0,64	30	0,96	10	0,32	40	1,28
		Operability for regulatory decision making	0,032	20	0,64	30	0,96	10	0,32	40	1,28
		Coherence between BP and PPP legislation	0,048	10	0,48	20	0,96	20	0,96	40	1,92
		Compliance with international obligations of the EU	0,048	10	0,48	10	0,48	10	0,48	40	1,92
Sectorial competitiveness: EU agriculture	0,17	Number of PPP affected	0,085	30	2,55	10	0,85	10	0,85	40	3,40
		Crops affected	0,051	30	1,53	10	0,51	10	0,51	40	2,04
		Existence of alternatives / risk of resistance of pests	0,034	10	0,34	20	0,68	20	0,68	40	1,36
Sectorial competitiveness: PPP, BP and related industries	0,09	Functioning of the single market	0,030	10	0,30	20	0,60	20	0,60	40	1,20
		Innovation and research	0,030	10	0,30	20	0,60	20	0,60	40	1,20
		SME's	0,030	10	0,30	20	0,60	20	0,60	40	1,20
International trade	0,18	Import of food	0,063	10	0,63	10	0,63	10	0,63	40	2,52
		Import of feed	0,063	10	0,63	20	1,26	20	1,26	40	2,52
		Import of treated articles	0,054	10	0,54	20	1,08	20	1,08	40	2,16
Human Health	0,20	Hormone related diseases and disorders	0,067	10	0,67	20	1,33	20	1,33	20	1,33
		Transmissible diseases caused by lack of appropriate disinfectants or insecticides	0,067	10	0,67	20	1,33	20	1,33	40	2,67
		Food safety	0,067	10	0,67	20	1,33	20	1,33	40	2,67
Environment	0,20	Chemical quality of water	0,067	40	2,67	20	1,33	20	1,33	10	0,67
		Wildlife vertebrate populations	0,067	10	0,67	20	1,33	20	1,33	20	1,33
		Animal welfare	0,067	20	1,33	20	1,33	10	0,67	20	1,33

1.4. Table 8. Scenario 4 - Health first

SCENARIO 4 - HEALTH FIRST											
Dimension	Dimension weight	Criteria	Criteria weight	Options							
				Option 1		Option 2		Option 3		Option 4	
				Performance	Weighted P	Performance	Weighted P	Performance	Weighted P	Performance	Weighted P
Effectiveness and coherence	0,16	Legal certainty and proportionality	0,032	20	0,64	30	0,96	10	0,32	40	1,28
		Operability for regulatory decision making	0,032	20	0,64	30	0,96	10	0,32	40	1,28
		Coherence between BP and PPP legislation	0,048	10	0,48	20	0,96	20	0,96	40	1,92
		Compliance with international obligations of the EU	0,048	10	0,48	10	0,48	10	0,48	40	1,92
Sectorial competitiveness: EU agriculture	0,19	Number of PPP affected	0,095	30	2,85	10	0,95	10	0,95	40	3,80
		Crops affected	0,057	30	1,71	10	0,57	10	0,57	40	2,28
		Existence of alternatives / risk of resistance of pests	0,038	10	0,38	20	0,76	20	0,76	40	1,52
Sectorial competitiveness: PPP, BP and related industries	0,08	Functioning of the single market	0,027	10	0,27	20	0,53	20	0,53	40	1,07
		Innovation and research	0,027	10	0,27	20	0,53	20	0,53	40	1,07
		SME's	0,027	10	0,27	20	0,53	20	0,53	40	1,07
International trade	0,20	Import of food	0,070	10	0,70	10	0,70	10	0,70	40	2,80
		Import of feed	0,070	10	0,70	20	1,40	20	1,40	40	2,80
		Import of treated articles	0,060	10	0,60	20	1,20	20	1,20	40	2,40
Human Health	0,25	Hormone related diseases and disorders	0,083	10	0,83	20	1,67	20	1,67	20	1,67
		Transmissible diseases caused by lack of appropriate disinfectants or insecticides	0,083	10	0,83	20	1,67	20	1,67	40	3,33
		Food safety	0,083	10	0,83	20	1,67	20	1,67	40	3,33
Environment	0,12	Chemical quality of water	0,040	40	1,60	20	0,80	20	0,80	10	0,40
		Wildlife vertebrate populations	0,040	10	0,40	20	0,80	20	0,80	20	0,80
		Animal welfare	0,040	20	0,80	20	0,80	10	0,40	20	0,80

1.5. Table 9 to 11. Scenario 5 - Aim: exposure zero

Table 9. Sub scenario 5/A³

SCENARIO 5/A - AIM: EXPOSURE ZERO											
Dimension	Dimension weight	Criteria	Criteria weight	Options							
				Option 1		Option 2		Option 3		Option 4	
				Performance	Weighted P	Performance	Weighted P	Performance	Weighted P	Performance	Weighted P
Effectiveness and coherence	0,16	Legal certainty and proportionality	0,032	20	0,64	30	0,96	10	0,32	40	1,28
		Operability for regulatory decision making	0,032	20	0,64	30	0,96	10	0,32	40	1,28
		Coherence between BP and PPP legislation	0,048	10	0,48	20	0,96	20	0,96	40	1,92
		Compliance with international obligations of the EU	0,048	10	0,48	10	0,48	10	0,48	40	1,92
Sectorial competitiveness: EU agriculture	0,17	Number of PPP affected	0,085	30	2,55	10	0,85	10	0,85	40	3,40
		Crops affected	0,051	30	1,53	10	0,51	10	0,51	40	2,04
		Existence of alternatives / risk of resistance of pests	0,034	10	0,34	20	0,68	20	0,68	40	1,36
Sectorial competitiveness: PPP, BP and related industries	0,09	Functioning of the single market	0,030	10	0,30	20	0,60	20	0,60	40	1,20
		Innovation and research	0,030	10	0,30	20	0,60	20	0,60	40	1,20
		SME's	0,030	10	0,30	20	0,60	20	0,60	40	1,20
International trade	0,18	Import of food	0,063	10	0,63	10	0,63	10	0,63	40	2,52
		Import of feed	0,063	10	0,63	20	1,26	20	1,26	40	2,52
		Import of treated articles	0,054	10	0,54	20	1,08	20	1,08	40	2,16
Human Health	0,20	Hormone related diseases and disorders	0,067	10	0,67	30	2,00	30	2,00	20	1,33
		Transmissible diseases caused by lack of appropriate disinfectants or insecticides	0,067	10	0,67	20	1,33	20	1,33	40	2,67
		Food safety	0,067	10	0,67	20	1,33	20	1,33	40	2,67
Environment	0,20	Chemical quality of water	0,067	40	2,67	20	1,33	20	1,33	10	0,67
		Wildlife vertebrate populations	0,067	10	0,67	30	2,00	30	2,00	20	1,33
		Animal welfare	0,067	20	1,33	20	1,33	10	0,67	20	1,33

³ This sub scenario corresponds to Scenario 3 (precautionary principle) but considers hazard, which translates into a different relative performance of options 2 and 3 with respect to the following MCA criteria linked directly to ED effects: hormone related diseases and disorders, and wildlife vertebrate populations (highlighted in grey)

Table 10. Sub scenario 5/B⁴

SCENARIO 5/B - AIM: EXPOSURE ZERO											
Dimension	Dimension weight	Criteria	Criteria weight	Options							
				Option 1		Option 2		Option 3		Option 4	
				Performance	Weighted P	Performance	Weighted P	Performance	Weighted P	Performance	Weighted P
Effectiveness and coherence	0,11	Legal certainty and proportionality	0,022	20	0,44	30	0,66	10	0,22	40	0,88
		Operability for regulatory decision making	0,022	20	0,44	30	0,66	10	0,22	40	0,88
		Coherence between BP and PPP legislation	0,033	10	0,33	20	0,66	20	0,66	40	1,32
		Compliance with international obligations of the EU	0,033	10	0,33	10	0,33	10	0,33	40	1,32
Sectorial competitiveness: EU agriculture	0,12	Number of PPP affected	0,060	30	1,80	10	0,60	10	0,60	40	2,40
		Crops affected	0,036	30	1,08	10	0,36	10	0,36	40	1,44
		Existence of alternatives / risk of resistance of pests	0,024	10	0,24	20	0,48	20	0,48	40	0,96
Sectorial competitiveness: PPP, BP and related industries	0,04	Functioning of the single market	0,013	10	0,13	20	0,27	20	0,27	40	0,53
		Innovation and research	0,013	10	0,13	20	0,27	20	0,27	40	0,53
		SME's	0,013	10	0,13	20	0,27	20	0,27	40	0,53
International trade	0,13	Import of food	0,046	10	0,46	10	0,46	10	0,46	40	1,82
		Import of feed	0,046	10	0,46	20	0,91	20	0,91	40	1,82
		Import of treated articles	0,039	10	0,39	20	0,78	20	0,78	40	1,56
Human Health	0,40	Hormone related diseases and disorders	0,200	10	2,00	30	6,00	30	6,00	20	4,00
		Transmissible diseases caused by lack of appropriate disinfectants or insecticides	0,100	10	1,00	20	2,00	20	2,00	40	4,00
		Food safety	0,100	10	1,00	20	2,00	20	2,00	40	4,00
Environment	0,20	Chemical quality of water	0,067	40	2,67	20	1,33	20	1,33	10	0,67
		Wildlife vertebrate populations	0,067	10	0,67	30	2,00	30	2,00	20	1,33
		Animal welfare	0,067	20	1,33	20	1,33	10	0,67	20	1,33

⁴ This sub scenario builds on 5A which considers hazard, and translates into a different relative performance of options 2 and 3 with respect to the following MCA criteria, linked directly to ED effects: hormone related diseases and disorders, and wildlife vertebrate populations (highlighted in grey). In addition, it increases the weight for Human Health (from 0,20 to 0,40) at the expenses of the other dimensions excluding Environment.

Table 11. Sub scenario 5/C⁵

SCENARIO 5/C - AIM: EXPOSURE ZERO											
Dimension	Dimension weight	Criteria	Criteria weight	Options							
				Option 1		Option 2		Option 3		Option 4	
				Performance	Weighted P	Performance	Weighted P	Performance	Weighted P	Performance	Weighted P
Effectiveness and coherence	0,16	Legal certainty and proportionality	0,032	20	0,64	30	0,96	10	0,32	40	1,28
		Operability for regulatory decision making	0,032	20	0,64	30	0,96	10	0,32	40	1,28
		Coherence between BP and PPP legislation	0,048	10	0,48	20	0,96	20	0,96	40	1,92
		Compliance with international obligations of the EU	0,048	10	0,48	10	0,48	10	0,48	40	1,92
Sectorial competitiveness: EU agriculture	0,19	Number of PPP affected	0,095	30	2,85	10	0,95	10	0,95	40	3,80
		Crops affected	0,057	30	1,71	10	0,57	10	0,57	40	2,28
		Existence of alternatives / risk of resistance of pests	0,038	10	0,38	20	0,76	20	0,76	40	1,52
Sectorial competitiveness: PPP, BP and related industries	0,08	Functioning of the single market	0,027	10	0,27	20	0,53	20	0,53	40	1,07
		Innovation and research	0,027	10	0,27	20	0,53	20	0,53	40	1,07
		SME's	0,027	10	0,27	20	0,53	20	0,53	40	1,07
International trade	0,20	Import of food	0,070	10	0,70	10	0,70	10	0,70	40	2,80
		Import of feed	0,070	10	0,70	20	1,40	20	1,40	40	2,80
		Import of treated articles	0,060	10	0,60	20	1,20	20	1,20	40	2,40
Human Health	0,25	Hormone related diseases and disorders	0,083	10	0,83	30	2,50	30	2,50	20	1,67
		Transmissible diseases caused by lack of appropriate disinfectants or insecticides	0,083	10	0,83	20	1,67	20	1,67	40	3,33
		Food safety	0,083	10	0,83	20	1,67	20	1,67	40	3,33
Environment	0,12	Chemical quality of water	0,040	40	1,60	20	0,80	20	0,80	10	0,40
		Wildlife vertebrate populations	0,040	10	0,40	30	1,20	30	1,20	20	0,80
		Animal welfare	0,040	20	0,80	20	0,80	10	0,40	20	0,80

⁵ This sub scenario corresponds to Scenario 4 (health first) but considers hazard, which translates into a different relative performance of options 2 and 3 with respect to the following MCA criteria, linked directly to ED effects: hormone related diseases and disorders, and wildlife vertebrate populations (highlighted in grey).

Table 12. Sub scenario 5/D⁶

SCENARIO 5/D - AIM: EXPOSURE ZERO											
Dimension	Dimension weight	Criteria	Criteria weight	Options							
				Option 1		Option 2		Option 3		Option 4	
				Performance	Weighted P	Performance	Weighted P	Performance	Weighted P	Performance	Weighted P
Effectiveness and coherence	0,13	Legal certainty and proportionality	0,026	20	0,52	30	0,78	10	0,26	40	1,04
		Operability for regulatory decision making	0,026	20	0,52	30	0,78	10	0,26	40	1,04
		Coherence between BP and PPP legislation	0,039	10	0,39	20	0,78	20	0,78	40	1,56
		Compliance with international obligations of the EU	0,039	10	0,39	10	0,39	10	0,39	40	1,56
Sectorial competitiveness: EU agriculture	0,16	Number of PPP affected	0,080	30	2,40	10	0,80	10	0,80	40	3,20
		Crops affected	0,048	30	1,44	10	0,48	10	0,48	40	1,92
		Existence of alternatives / risk of resistance of pests	0,032	10	0,32	20	0,64	20	0,64	40	1,28
Sectorial competitiveness: PPP, BP and related industries	0,05	Functioning of the single market	0,017	10	0,17	20	0,33	20	0,33	40	0,67
		Innovation and research	0,017	10	0,17	20	0,33	20	0,33	40	0,67
		SME's	0,017	10	0,17	20	0,33	20	0,33	40	0,67
International trade	0,17	Import of food	0,060	10	0,60	10	0,60	10	0,60	40	2,38
		Import of feed	0,060	10	0,60	20	1,19	20	1,19	40	2,38
		Import of treated articles	0,051	10	0,51	20	1,02	20	1,02	40	2,04
Human Health	0,40	Hormone related diseases and disorders	0,133	10	1,33	30	4,00	30	4,00	20	2,67
		Transmissible diseases caused by lack of appropriate disinfectants or insecticides	0,133	10	1,33	20	2,67	20	2,67	40	5,33
		Food safety	0,133	10	1,33	20	2,67	20	2,67	40	5,33
Environment	0,09	Chemical quality of water	0,030	40	1,20	20	0,60	20	0,60	10	0,30
		Wildlife vertebrate populations	0,030	10	0,30	30	0,90	30	0,90	20	0,60
		Animal welfare	0,030	20	0,60	20	0,60	10	0,30	20	0,60

⁶ This sub scenario builds on 5C, which considers hazard, and translates into a different relative performance of options 2 and 3 with respect to the following MCA criteria linked directly to ED effects: hormone related diseases and disorders, and wildlife vertebrate populations (highlighted in grey). In addition, it increases the weight for Human Health (from 0,25 to 0,40) while decreasing the weights for all other dimensions.

3. WEIGHTED PERFORMANCE MATRICES: ASPECT II - IMPLEMENTATION OF THE ED CRITERIA / APPROACH TO REGULATORY DECISION MAKING

1.6. Table 13 and 14. Scenario 1 - Homogeneity

Table 13. Sub scenario 1/A

SCENARIO 1/A - HOMOGENITY									
Dimension	Dimension weight	Criteria	Criteria weight	Options					
				Option A		Option B		Option C	
				Performance	Weighted P	Performance	Weighted P	Performance	Weighted P
Effectiveness and coherence	0,17	Legal certainty and proportionality	0,042	10	0,42	20	0,83	30	1,25
		Operability for regulatory decision making	0,042	10	0,42	20	0,83	30	1,25
		Coherence between BP and PPP legislation	0,042	10	0,42	20	0,83	30	1,25
		Compliance with international obligations of the EU	0,042	10	0,42	20	0,83	20	0,83
Sectorial competitiveness: EU agriculture	0,17	Number of PPP affected	0,056	10	0,56	20	1,11	30	1,67
		Crops affected	0,056	10	0,56	20	1,11	30	1,67
		Existence of alternatives / risk of resistance of pests	0,056	10	0,56	20	1,11	30	1,67
Sectorial competitiveness: PPP, BP and related industries	0,17	Functioning of the single market	0,056	10	0,56	20	1,11	30	1,67
		Innovation and research	0,056	10	0,56	20	1,11	30	1,67
		SME's	0,056	10	0,56	20	1,11	30	1,67
International trade	0,17	Import of food	0,056	10	0,56	20	1,11	20	1,11
		Import of feed	0,056	10	0,56	20	1,11	20	1,11
		Import of treated articles	0,056	10	0,56	10	0,56	10	0,56
Human Health	0,17	Hormone related diseases and disorders	0,056	20	1,11	20	1,11	10	0,56
		Transmissible diseases caused by lack of appropriate disinfectants or insecticides	0,056	10	0,56	10	0,56	10	0,56
		Food safety	0,056	10	0,56	20	1,11	30	1,67
Environment	0,17	Chemical quality of water	0,056	20	1,11	20	1,11	10	0,56
		Wildlife vertebrate populations	0,056	20	1,11	20	1,11	10	0,56
		Animal welfare	0,056	10	0,56	10	0,56	10	0,56

Table 14. Sub scenario 1/B

SCENARIO 1/B - HOMOGENITY									
Dimension	Dimension weight	Criteria	Criteria weight	Options					
				Option A		Option B		Option C	
				Performance	Weighted P	Performance	Weighted P	Performance	Weighted P
Effectiveness and coherence	0,17	Legal certainty and proportionality	0,033	10	0,33	20	0,67	30	1,00
		Operability for regulatory decision making	0,033	10	0,33	20	0,67	30	1,00
		Coherence between BP and PPP legislation	0,050	10	0,50	20	1,00	30	1,50
		Compliance with international obligations of the EU	0,050	10	0,50	20	1,00	20	1,00
Sectorial competitiveness: EU agriculture	0,17	Number of PPP affected	0,083	10	0,83	20	1,67	30	2,50
		Crops affected	0,050	10	0,50	20	1,00	30	1,50
		Existence of alternatives / risk of resistance of pests	0,033	10	0,33	20	0,67	30	1,00
Sectorial competitiveness: PPP, BP and related industries	0,17	Functioning of the single market	0,056	10	0,56	20	1,11	30	1,67
		Innovation and research	0,056	10	0,56	20	1,11	30	1,67
		SME's	0,056	10	0,56	20	1,11	30	1,67
International trade	0,17	Import of food	0,058	10	0,58	20	1,17	20	1,17
		Import of feed	0,058	10	0,58	20	1,17	20	1,17
		Import of treated articles	0,050	10	0,50	10	0,50	10	0,50
Human Health	0,17	Hormone related diseases and disorders	0,056	20	1,11	20	1,11	10	0,56
		Transmissible diseases caused by lack of appropriate disinfectants or insecticides	0,056	10	0,56	10	0,56	10	0,56
		Food safety	0,056	10	0,56	20	1,11	30	1,67
Environment	0,17	Chemical quality of water	0,056	20	1,11	20	1,11	10	0,56
		Wildlife vertebrate populations	0,056	20	1,11	20	1,11	10	0,56
		Animal welfare	0,056	10	0,56	10	0,56	10	0,56

1.7. **Tabel 15. Scenario 2 - Priority to evidence**

SCENARIO 2 - PRIORITY TO EVIDENCE									
Dimension	Dimension weight	Criteria	Criteria weight	Options					
				Option A		Option B		Option C	
				Performance	Weighted P	Performance	Weighted P	Performance	Weighted P
Effectiveness and coherence	0,18	Legal certainty and proportionality	0,036	10	0,36	20	0,72	30	1,08
		Operability for regulatory decision making	0,036	10	0,36	20	0,72	30	1,08
		Coherence between BP and PPP legislation	0,054	10	0,54	20	1,08	30	1,62
		Compliance with international obligations of the EU	0,054	10	0,54	20	1,08	20	1,08
Sectorial competitiveness: EU agriculture	0,21	Number of PPP affected	0,105	10	1,05	20	2,10	30	3,15
		Crops affected	0,063	10	0,63	20	1,26	30	1,89
		Existence of alternatives / risk of resistance of pests	0,042	10	0,42	20	0,84	30	1,26
Sectorial competitiveness: PPP, BP and related industries	0,12	Functioning of the single market	0,040	10	0,40	20	0,80	30	1,20
		Innovation and research	0,040	10	0,40	20	0,80	30	1,20
		SME's	0,040	10	0,40	20	0,80	30	1,20
International trade	0,22	Import of food	0,077	10	0,77	20	1,54	20	1,54
		Import of feed	0,077	10	0,77	20	1,54	20	1,54
		Import of treated articles	0,066	10	0,66	10	0,66	10	0,66
Human Health	0,13	Hormone related diseases and disorders	0,043	20	0,87	20	0,87	10	0,43
		Transmissible diseases caused by lack of appropriate disinfectants or insecticides	0,043	10	0,43	10	0,43	10	0,43
		Food safety	0,043	10	0,43	20	0,87	30	1,30
Environment	0,14	Chemical quality of water	0,047	20	0,93	20	0,93	10	0,47
		Wildlife vertebrate populations	0,047	20	0,93	20	0,93	10	0,47
		Animal welfare	0,047	10	0,47	10	0,47	10	0,47

1.8. Table 16. Scenario 3 - Priority to health and environment

SCENARIO 3 - PRIORITY TO HEALTH and ENVIRONMENT									
Dimension	Dimension weight	Criteria	Criteria weight	Options					
				Option A		Option B		Option C	
				Performance	Weighted P	Performance	Weighted P	Performance	Weighted P
Effectiveness and coherence	0,16	Legal certainty and proportionality	0,032	10	0,32	20	0,64	30	0,96
		Operability for regulatory decision making	0,032	10	0,32	20	0,64	30	0,96
		Coherence between BP and PPP legislation	0,048	10	0,48	20	0,96	30	1,44
		Compliance with international obligations of the EU	0,048	10	0,48	20	0,96	20	0,96
Sectorial competitiveness: EU agriculture	0,17	Number of PPP affected	0,085	10	0,85	20	1,70	30	2,55
		Crops affected	0,051	10	0,51	20	1,02	30	1,53
		Existence of alternatives / risk of resistance of pests	0,034	10	0,34	20	0,68	30	1,02
Sectorial competitiveness: PPP, BP and related industries	0,09	Functioning of the single market	0,030	10	0,30	20	0,60	30	0,90
		Innovation and research	0,030	10	0,30	20	0,60	30	0,90
		SME's	0,030	10	0,30	20	0,60	30	0,90
International trade	0,18	Import of food	0,063	10	0,63	20	1,26	20	1,26
		Import of feed	0,063	10	0,63	20	1,26	20	1,26
		Import of treated articles	0,054	10	0,54	10	0,54	10	0,54
Human Health	0,20	Hormone related diseases and disorders	0,067	20	1,33	20	1,33	10	0,67
		Transmissible diseases caused by lack of appropriate disinfectants or insecticides	0,067	10	0,67	10	0,67	10	0,67
		Food safety	0,067	10	0,67	20	1,33	30	2,00
Environment	0,20	Chemical quality of water	0,067	20	1,33	20	1,33	10	0,67
		Wildlife vertebrate populations	0,067	20	1,33	20	1,33	10	0,67
		Animal welfare	0,067	10	0,67	10	0,67	10	0,67

1.9. **Table 17. Scenario 4 - Health first**

SCENARIO 4 - HEALTH FIRST									
Dimension	Dimension weight	Criteria	Criteria weight	Options					
				Option A		Option B		Option C	
				Performance	Weighted P	Performance	Weighted P	Performance	Weighted P
Effectiveness and coherence	0,16	Legal certainty and proportionality	0,032	10	0,32	20	0,64	30	0,96
		Operability for regulatory decision making	0,032	10	0,32	20	0,64	30	0,96
		Coherence between BP and PPP legislation	0,048	10	0,48	20	0,96	30	1,44
		Compliance with international obligations of the EU	0,048	10	0,48	20	0,96	20	0,96
Sectorial competitiveness: EU agriculture	0,19	Number of PPP affected	0,095	10	0,95	20	1,90	30	2,85
		Crops affected	0,057	10	0,57	20	1,14	30	1,71
		Existence of alternatives / risk of resistance of pests	0,038	10	0,38	20	0,76	30	1,14
Sectorial competitiveness: PPP, BP and related industries	0,08	Functioning of the single market	0,027	10	0,27	20	0,53	30	0,80
		Innovation and research	0,027	10	0,27	20	0,53	30	0,80
		SME's	0,027	10	0,27	20	0,53	30	0,80
International trade	0,20	Import of food	0,070	10	0,70	20	1,40	20	1,40
		Import of feed	0,070	10	0,70	20	1,40	20	1,40
		Import of treated articles	0,060	10	0,60	10	0,60	10	0,60
Human Health	0,25	Hormone related diseases and disorders	0,083	20	1,67	20	1,67	10	0,83
		Transmissible diseases caused by lack of appropriate disinfectants or insecticides	0,083	10	0,83	10	0,83	10	0,83
		Food safety	0,083	10	0,83	20	1,67	30	2,50
Environment	0,12	Chemical quality of water	0,040	20	0,80	20	0,80	10	0,40
		Wildlife vertebrate populations	0,040	20	0,80	20	0,80	10	0,40
		Animal welfare	0,040	10	0,40	10	0,40	10	0,40

1.10. Table 18 to 21. Scenario 5 - Aim: exposure zero

Table 18. Sub scenario 5/A⁷

SCENARIO 5/A - AIM: EXPOSURE ZERO									
Dimension	Dimension weight	Criteria	Criteria weight	Options					
				Option A		Option B		Option C	
				Performance	Weighted P	Performance	Weighted P	Performance	Weighted P
Effectiveness and coherence	0,16	Legal certainty and proportionality	0,032	10	0,32	20	0,64	30	0,96
		Operability for regulatory decision making	0,032	10	0,32	20	0,64	30	0,96
		Coherence between BP and PPP legislation	0,048	10	0,48	20	0,96	30	1,44
		Compliance with international obligations of the EU	0,048	10	0,48	20	0,96	20	0,96
Sectorial competitiveness: EU agriculture	0,17	Number of PPP affected	0,085	10	0,85	20	1,70	30	2,55
		Crops affected	0,051	10	0,51	20	1,02	30	1,53
		Existence of alternatives / risk of resistance of pests	0,034	10	0,34	20	0,68	30	1,02
Sectorial competitiveness: PPP, BP and	0,09	Functioning of the single market	0,030	10	0,30	20	0,60	30	0,90
		Innovation and research	0,030	10	0,30	20	0,60	30	0,90
		SME's	0,030	10	0,30	20	0,60	30	0,90
International trade	0,18	Import of food	0,063	10	0,63	20	1,26	20	1,26
		Import of feed	0,063	10	0,63	20	1,26	20	1,26
		Import of treated articles	0,054	10	0,54	10	0,54	10	0,54
Human Health	0,20	Hormone related diseases and disorders	0,067	30	2,00	20	1,33	10	0,67
		Transmissible diseases caused by lack of appropriate disinfectants or insecticides	0,067	10	0,67	10	0,67	10	0,67
		Food safety	0,067	10	0,67	20	1,33	30	2,00
Environment	0,20	Chemical quality of water	0,067	30	2,00	20	1,33	10	0,67
		Wildlife vertebrate populations	0,067	30	2,00	20	1,33	10	0,67
		Animal welfare	0,067	10	0,67	10	0,67	10	0,67

⁷ This sub scenario corresponds to Scenario 3 (Priority to health and environment) but considers hazard, which translates into a different relative performance of Option A with respect to the following MCA criteria, linked directly to ED effects: hormone related diseases and disorders, chemical quality of water, and wildlife vertebrate populations (highlighted in grey).

Table 19. Sub scenario 5/B⁸

SCENARIO 5/B - AIM: EXPOSURE ZERO									
Dimension	Dimension weight	Criteria	Criteria weight	Options					
				Option A		Option B		Option C	
				Performance	Weighted P	Performance	Weighted P	Performance	Weighted P
Effectiveness and coherence	0,11	Legal certainty and proportionality	0,022	10	0,22	20	0,44	30	0,66
		Operability for regulatory decision making	0,022	10	0,22	20	0,44	30	0,66
		Coherence between BP and PPP legislation	0,033	10	0,33	20	0,66	30	0,99
		Compliance with international obligations of the EU	0,033	10	0,33	20	0,66	20	0,66
Sectorial competitiveness: EU agriculture	0,12	Number of PPP affected	0,060	10	0,60	20	1,20	30	1,80
		Crops affected	0,036	10	0,36	20	0,72	30	1,08
		Existence of alternatives / risk of resistance of pests	0,024	10	0,24	20	0,48	30	0,72
Sectorial competitiveness: PPP, BP and	0,04	Functioning of the single market	0,013	10	0,13	20	0,27	30	0,40
		Innovation and research	0,013	10	0,13	20	0,27	30	0,40
		SME's	0,013	10	0,13	20	0,27	30	0,40
International trade	0,13	Import of food	0,046	10	0,46	20	0,91	20	0,91
		Import of feed	0,046	10	0,46	20	0,91	20	0,91
		Import of treated articles	0,039	10	0,39	10	0,39	10	0,39
Human Health	0,40	Hormone related diseases and disorders	0,200	30	6,00	20	4,00	10	2,00
		Transmissible diseases caused by lack of appropriate disinfectants or insecticides	0,100	10	1,00	10	1,00	10	1,00
		Food safety	0,100	10	1,00	20	2,00	30	3,00
Environment	0,20	Chemical quality of water	0,067	30	2,00	20	1,33	10	0,67
		Wildlife vertebrate populations	0,067	30	2,00	20	1,33	10	0,67
		Animal welfare	0,067	10	0,67	10	0,67	10	0,67

⁸ This sub scenario builds on 5A which considers hazard, and translates into a different relative performance of Option A with respect to the following MCA criteria, linked directly to ED effects: hormone related diseases and disorders, chemical quality of water, and wildlife vertebrate populations (highlighted in grey). In addition, it increases the weight for Human Health (from 0,20 to 0,40) at the expenses of the other dimensions excluding Environment.

Table 20. Sub scenario 5/C⁹

SCENARIO 5/C - AIM: EXPOSURE ZERO									
Dimension	Dimension weight	Criteria	Criteria weight	Options					
				Option A		Option B		Option C	
				Performance	Weighted P	Performance	Weighted P	Performance	Weighted P
Effectiveness and coherence	0,16	Legal certainty and proportionality	0,032	10	0,32	20	0,64	30	0,96
		Operability for regulatory decision making	0,032	10	0,32	20	0,64	30	0,96
		Coherence between BP and PPP legislation	0,048	10	0,48	20	0,96	30	1,44
		Compliance with international obligations of the EU	0,048	10	0,48	20	0,96	20	0,96
Sectorial competitiveness: EU agriculture	0,19	Number of PPP affected	0,095	10	0,95	20	1,90	30	2,85
		Crops affected	0,057	10	0,57	20	1,14	30	1,71
		Existence of alternatives / risk of resistance of pests	0,038	10	0,38	20	0,76	30	1,14
Sectorial competitiveness: PPP, BP and	0,08	Functioning of the single market	0,027	10	0,27	20	0,53	30	0,80
		Innovation and research	0,027	10	0,27	20	0,53	30	0,80
		SME's	0,027	10	0,27	20	0,53	30	0,80
International trade	0,20	Import of food	0,070	10	0,70	20	1,40	20	1,40
		Import of feed	0,070	10	0,70	20	1,40	20	1,40
		Import of treated articles	0,060	10	0,60	10	0,60	10	0,60
Human Health	0,25	Hormone related diseases and disorders	0,083	30	2,50	20	1,67	10	0,83
		Transmissible diseases caused by lack of appropriate disinfectants or insecticides	0,083	10	0,83	10	0,83	10	0,83
		Food safety	0,083	10	0,83	20	1,67	30	2,50
Environment	0,12	Chemical quality of water	0,040	30	1,20	20	0,80	10	0,40
		Wildlife vertebrate populations	0,040	30	1,20	20	0,80	10	0,40
		Animal welfare	0,040	10	0,40	10	0,40	10	0,40

⁹ This sub scenario corresponds to Scenario 4 (Health first) but considers hazard, which translates into a different relative performance of Option A with respect to the following MCA criteria, linked directly to ED effects: hormone related diseases and disorders, chemical quality of water, and wildlife vertebrate populations (highlighted in grey).

Table 21. Sub scenario 5/D¹⁰

SCENARIO 5/D - AIM: EXPOSURE ZERO									
Dimension	Dimension weight	Criteria	Criteria weight	Options					
				Option A		Option B		Option C	
				Performance	Weighted P	Performance	Weighted P	Performance	Weighted P
Effectiveness and coherence	0,13	Legal certainty and proportionality	0,026	10	0,26	20	0,52	30	0,78
		Operability for regulatory decision making	0,026	10	0,26	20	0,52	30	0,78
		Coherence between BP and PPP legislation	0,039	10	0,39	20	0,78	30	1,17
		Compliance with international obligations of the EU	0,039	10	0,39	20	0,78	20	0,78
Sectorial competitiveness: EU agriculture	0,16	Number of PPP affected	0,080	10	0,80	20	1,60	30	2,40
		Crops affected	0,048	10	0,48	20	0,96	30	1,44
		Existence of alternatives / risk of resistance of pests	0,032	10	0,32	20	0,64	30	0,96
Sectorial competitiveness: PPP, BP and	0,05	Functioning of the single market	0,017	10	0,17	20	0,33	30	0,50
		Innovation and research	0,017	10	0,17	20	0,33	30	0,50
		SME's	0,017	10	0,17	20	0,33	30	0,50
International trade	0,17	Import of food	0,060	10	0,60	20	1,19	20	1,19
		Import of feed	0,060	10	0,60	20	1,19	20	1,19
		Import of treated articles	0,051	10	0,51	10	0,51	10	0,51
Human Health	0,40	Hormone related diseases and disorders	0,133	30	4,00	20	2,67	10	1,33
		Transmissible diseases caused by lack of appropriate disinfectants or insecticides	0,133	10	1,33	10	1,33	10	1,33
		Food safety	0,133	10	1,33	20	2,67	30	4,00
Environment	0,09	Chemical quality of water	0,030	30	0,90	20	0,60	10	0,30
		Wildlife vertebrate populations	0,030	30	0,90	20	0,60	10	0,30
		Animal welfare	0,030	10	0,30	10	0,30	10	0,30

¹⁰ This sub scenario builds on 5C which considers hazard, and translates into a different relative performance of Option A with respect to the following MCA criteria, linked directly to ED effects: hormone related diseases and disorders, chemical quality of water, and wildlife vertebrate populations (highlighted in grey). In addition, it increases the weight for Human Health (from 0,25 to 0,40) while decreasing the weights for all other dimensions.

4. OUTRANKING MATRICES AND POLICY RANKING PERMUTATIONS: ASPECT I - SETTING SCIENTIFIC CRITERIA TO IDENTIFY EDs

1.11. Table 22 and 23. Scenario 1 - Homogeneity

Table 22. Sub scenario 1/A

Outranking matrix				
	Option 1	Option 2	Option 3	Option 4
Option 1	-	0,24	0,35	0,08
Option 2	0,76	-	0,57	0,14
Option 3	0,65	0,43	-	0,11
Option 4	0,92	0,86	0,89	-

Policy ranking permutations (24)			
Permutations	Pairings		Scores
1234	12+13+14+23+24+34		1,50
1243	12+14+13+24+23+43		2,28
1324	13+12+14+32+34+24		1,36
1342	13+14+12+34+32+42		2,08
1423	14+12+13+42+43+23		3,00
1432	14+13+12+43+42+32		2,86
2134	21+23+24+13+14+34		2,01
2143	21+24+23+14+13+43		2,79
2314	23+21+24+31+34+14		2,31
2341	23+24+21+34+31+41		3,14
2413	24+21+23+41+43+13		3,63
2431	24+23+21+43+41+31		3,92
3124	31+32+34+12+14+24		1,65
3142	31+34+32+14+12+42		2,38
3214	32+31+34+21+24+14		2,17
3241	32+34+31+24+21+41		3,00
3412	34+31+32+41+42+12		3,21
3421	34+32+31+42+41+21		3,72
4123	41+42+43+12+13+23		3,83
4132	41+43+42+13+12+32		3,69
4213	42+41+43+21+23+13		4,35
4231	42+43+41+23+21+31		4,64
4312	43+41+42+31+32+12		3,99
4321	43+42+41+32+31+21		4,50

Table 23. Sub scenario 1/B

Outranking matrix				
	Option 1	Option 2	Option 3	Option 4
Option 1	-	0,27	0,37	0,08
Option 2	0,73	-	0,56	0,14
Option 3	0,63	0,44	-	0,11
Option 4	0,92	0,86	0,89	-

Policy ranking permutations (24)			
Permutations	Pairings		Scores
1234	12+13+14+23+24+34		1,53
1243	12+14+13+24+23+43		2,31
1324	13+12+14+32+34+24		1,41
1342	13+14+12+34+32+42		2,13
1423	14+12+13+42+43+23		3,03
1432	14+13+12+43+42+32		2,91
2134	21+23+24+13+14+34		1,99
2143	21+24+23+14+13+43		2,77
2314	23+21+24+31+34+14		2,26
2341	23+24+21+34+31+41		3,09
2413	24+21+23+41+43+13		3,60
2431	24+23+21+43+41+31		3,87
3124	31+32+34+12+14+24		1,68
3142	31+34+32+14+12+42		2,40
3214	32+31+34+21+24+14		2,14
3241	32+34+31+24+21+41		2,97
3412	34+31+32+41+42+12		3,23
3421	34+32+31+42+41+21		3,69
4123	41+42+43+12+13+23		3,86
4132	41+43+42+13+12+32		3,74
4213	42+41+43+21+23+13		4,32
4231	42+43+41+23+21+31		4,59
4312	43+41+42+31+32+12		4,01
4321	43+42+41+32+31+21		4,47

1.12. Table 24. Scenario 2 - Priority to evidence

Outranking matrix				
	Option 1	Option 2	Option 3	Option 4
Option 1	-	0,30	0,40	0,07
Option 2	0,70	-	0,56	0,12
Option 3	0,60	0,44	-	0,09
Option 4	0,93	0,89	0,91	-

Policy ranking permutations (24)			
Permutations	Pairings		Scores
1234	12+13+14+23+24+34		1,54
1243	12+14+13+24+23+43		2,36
1324	13+12+14+32+34+24		1,42
1342	13+14+12+34+32+42		2,19
1423	14+12+13+42+43+23		3,13
1432	14+13+12+43+42+32		3,01
2134	21+23+24+13+14+34		1,93
2143	21+24+23+14+13+43		2,75
2314	23+21+24+31+34+14		2,13
2341	23+24+21+34+31+41		2,99
2413	24+21+23+41+43+13		3,61
2431	24+23+21+43+41+31		3,81
3124	31+32+34+12+14+24		1,62
3142	31+34+32+14+12+42		2,39
3214	32+31+34+21+24+14		2,02
3241	32+34+31+24+21+41		2,88
3412	34+31+32+41+42+12		3,25
3421	34+32+31+42+41+21		3,65
4123	41+42+43+12+13+23		3,99
4132	41+43+42+13+12+32		3,87
4213	42+41+43+21+23+13		4,38
4231	42+43+41+23+21+31		4,58
4312	43+41+42+31+32+12		4,07
4321	43+42+41+32+31+21		4,46

1.13. Table 25. Scenario 3 - Priority to health and environment

Outranking matrix				
	Option 1	Option 2	Option 3	Option 4
Option 1	-	0,29	0,39	0,10
Option 2	0,71	-	0,57	0,17
Option 3	0,61	0,43	-	0,13
Option 4	0,90	0,83	0,87	-

Policy ranking permutations (24)			
Permutations	Pairings		Scores
1234	12+13+14+23+24+34		1,65
1243	12+14+13+24+23+43		2,38
1324	13+12+14+32+34+24		1,52
1342	13+14+12+34+32+42		2,18
1423	14+12+13+42+43+23		3,05
1432	14+13+12+43+42+32		2,92
2134	21+23+24+13+14+34		2,06
2143	21+24+23+14+13+43		2,80
2314	23+21+24+31+34+14		2,29
2341	23+24+21+34+31+41		3,09
2413	24+21+23+41+43+13		3,60
2431	24+23+21+43+41+31		3,82
3124	31+32+34+12+14+24		1,74
3142	31+34+32+14+12+42		2,40
3214	32+31+34+21+24+14		2,15
3241	32+34+31+24+21+41		2,95
3412	34+31+32+41+42+12		3,20
3421	34+32+31+42+41+21		3,62
4123	41+42+43+12+13+23		3,85
4132	41+43+42+13+12+32		3,72
4213	42+41+43+21+23+13		4,26
4231	42+43+41+23+21+31		4,49
4312	43+41+42+31+32+12		3,94
4321	43+42+41+32+31+21		4,35

1.14. Table 26. Scenario 4 - Health first

Outranking matrix				
	Option 1	Option 2	Option 3	Option 4
Option 1	-	0,27	0,36	0,06
Option 2	0,73	-	0,55	0,12
Option 3	0,65	0,45	-	0,10
Option 4	0,94	0,88	0,90	-

Policy ranking permutations (24)			
Permutations	Pairings		Scores
1234	12+13+14+23+24+34		1,46
1243	12+14+13+24+23+43		2,26
1324	13+12+14+32+34+24		1,36
1342	13+14+12+34+32+42		2,11
1423	14+12+13+42+43+23		3,01
1432	14+13+12+43+42+32		2,91
2134	21+23+24+13+14+34		1,92
2143	21+24+23+14+13+43		2,72
2314	23+21+24+31+34+14		2,21
2341	23+24+21+34+31+41		3,09
2413	24+21+23+41+43+13		3,60
2431	24+23+21+43+41+31		3,89
3124	31+32+34+12+14+24		1,65
3142	31+34+32+14+12+42		2,40
3214	32+31+34+21+24+14		2,11
3241	32+34+31+24+21+41		2,99
3412	34+31+32+41+42+12		3,28
3421	34+32+31+42+41+21		3,74
4123	41+42+43+12+13+23		3,89
4132	41+43+42+13+12+32		3,79
4213	42+41+43+21+23+13		4,35
4231	42+43+41+23+21+31		4,64
4312	43+41+42+31+32+12		4,08
4321	43+42+41+32+31+21		4,54

1.15. Table 27 to 30. Scenario 5 - Aim: exposure zero

Table 27. Sub scenario 5/A

Outranking matrix				
	Option 1	Option 2	Option 3	Option 4
Option 1	-	0,29	0,39	0,10
Option 2	0,71	-	0,57	0,23
Option 3	0,61	0,43	-	0,20
Option 4	0,90	0,77	0,80	-

Policy ranking permutations (24)			
Permutations	Pairings		Scores
1234	12+13+14+23+24+34		1,78
1243	12+14+13+24+23+43		2,38
1324	13+12+14+32+34+24		1,65
1342	13+14+12+34+32+42		2,18
1423	14+12+13+42+43+23		2,91
1432	14+13+12+43+42+32		2,78
2134	21+23+24+13+14+34		2,20
2143	21+24+23+14+13+43		2,80
2314	23+21+24+31+34+14		2,42
2341	23+24+21+34+31+41		3,22
2413	24+21+23+41+43+13		3,60
2431	24+23+21+43+41+31		3,82
3124	31+32+34+12+14+24		1,87
3142	31+34+32+14+12+42		2,40
3214	32+31+34+21+24+14		2,29
3241	32+34+31+24+21+41		3,09
3412	34+31+32+41+42+12		3,20
3421	34+32+31+42+41+21		3,62
4123	41+42+43+12+13+23		3,71
4132	41+43+42+13+12+32		3,58
4213	42+41+43+21+23+13		4,13
4231	42+43+41+23+21+31		4,35
4312	43+41+42+31+32+12		3,80
4321	43+42+41+32+31+21		4,22

Table 28. Sub scenario 5/B

Outranking matrix				
	Option 1	Option 2	Option 3	Option 4
Option 1	-	0,24	0,31	0,10
Option 2	0,76	-	0,56	0,37
Option 3	0,69	0,44	-	0,33
Option 4	0,90	0,63	0,67	-

Policy ranking permutations (24)			
Permutations	Pairings		Scores
1234	12+13+14+23+24+34		1,90
1243	12+14+13+24+23+43		2,24
1324	13+12+14+32+34+24		1,79
1342	13+14+12+34+32+42		2,06
1423	14+12+13+42+43+23		2,50
1432	14+13+12+43+42+32		2,39
2134	21+23+24+13+14+34		2,43
2143	21+24+23+14+13+43		2,77
2314	23+21+24+31+34+14		2,81
2341	23+24+21+34+31+41		3,61
2413	24+21+23+41+43+13		3,57
2431	24+23+21+43+41+31		3,94
3124	31+32+34+12+14+24		2,17
3142	31+34+32+14+12+42		2,43
3214	32+31+34+21+24+14		2,70
3241	32+34+31+24+21+41		3,50
3412	34+31+32+41+42+12		3,23
3421	34+32+31+42+41+21		3,76
4123	41+42+43+12+13+23		3,30
4132	41+43+42+13+12+32		3,19
4213	42+41+43+21+23+13		3,83
4231	42+43+41+23+21+31		4,21
4312	43+41+42+31+32+12		3,57
4321	43+42+41+32+31+21		4,10

Table 29. Sub scenario 5/C

Outranking matrix				
	Option 1	Option 2	Option 3	Option 4
Option 1	-	0,27	0,36	0,06
Option 2	0,73	-	0,55	0,18
Option 3	0,65	0,45	-	0,16
Option 4	0,94	0,82	0,84	-

Policy ranking permutations (24)			
Permutations	Pairings		Scores
1234	12+13+14+23+24+34		1,58
1243	12+14+13+24+23+43		2,26
1324	13+12+14+32+34+24		1,48
1342	13+14+12+34+32+42		2,11
1423	14+12+13+42+43+23		2,89
1432	14+13+12+43+42+32		2,79
2134	21+23+24+13+14+34		2,04
2143	21+24+23+14+13+43		2,72
2314	23+21+24+31+34+14		2,33
2341	23+24+21+34+31+41		3,21
2413	24+21+23+41+43+13		3,60
2431	24+23+21+43+41+31		3,89
3124	31+32+34+12+14+24		1,77
3142	31+34+32+14+12+42		2,40
3214	32+31+34+21+24+14		2,23
3241	32+34+31+24+21+41		3,11
3412	34+31+32+41+42+12		3,28
3421	34+32+31+42+41+21		3,74
4123	41+42+43+12+13+23		3,77
4132	41+43+42+13+12+32		3,67
4213	42+41+43+21+23+13		4,23
4231	42+43+41+23+21+31		4,52
4312	43+41+42+31+32+12		3,96
4321	43+42+41+32+31+21		4,42

Table 30. Sub scenario 5/D

Outranking matrix				
	Option 1	Option 2	Option 3	Option 4
Option 1	-	0,22	0,29	0,05
Option 2	0,78	-	0,54	0,21
Option 3	0,71	0,46	-	0,19
Option 4	0,96	0,79	0,81	-

Policy ranking permutations (24)			
Permutations	Pairings		Scores
1234	12+13+14+23+24+34		1,50
1243	12+14+13+24+23+43		2,11
1324	13+12+14+32+34+24		1,42
1342	13+14+12+34+32+42		2,00
1423	14+12+13+42+43+23		2,70
1432	14+13+12+43+42+32		2,61
2134	21+23+24+13+14+34		2,05
2143	21+24+23+14+13+43		2,67
2314	23+21+24+31+34+14		2,48
2341	23+24+21+34+31+41		3,39
2413	24+21+23+41+43+13		3,58
2431	24+23+21+43+41+31		4,00
3124	31+32+34+12+14+24		1,84
3142	31+34+32+14+12+42		2,42
3214	32+31+34+21+24+14		2,39
3241	32+34+31+24+21+41		3,30
3412	34+31+32+41+42+12		3,33
3421	34+32+31+42+41+21		3,89
4123	41+42+43+12+13+23		3,61
4132	41+43+42+13+12+32		3,52
4213	42+41+43+21+23+13		4,16
4231	42+43+41+23+21+31		4,58
4312	43+41+42+31+32+12		3,95
4321	43+42+41+32+31+21		4,50

5. OUTRANKING MATRICES AND POLICY RANKING PERMUTATIONS: ASPECT II - IMPLEMENTATION OF THE ED CRITERIA / APPROACH TO REGULATORY DECISION MAKING

1.16. Table 31 to 32. Scenario 1 - Homogeneity

Table 31. Sub scenario 1/A

Outranking matrix			
	Option A	Option B	Option C
Option A	-	0,17	0,25
Option B	0,83	-	0,33
Option C	0,75	0,67	-

Policy ranking permutations (6)		
Permutations	Pairings	Scores
ABC	AB + AC + BC	0,74
ACB	AC + CB + AB	1,09
BAC	BA + AC + BC	1,41
BCA	BC + CA + CB	1,75
CAB	CA + AB + CB	1,59
CBA	CB + CA + BA	2,26

Table 32. Sub scenario 1/B

Outranking matrix			
	Option A	Option B	Option C
Option A	-	0,16	0,25
Option B	0,84	-	0,33
Option C	0,75	0,67	-

Policy ranking permutations (6)		
Permutations	Pairings	Scores
ABC	AB + AC + BC	0,74
ACB	AC + CB + AB	1,08
BAC	BA + AC + BC	1,41
BCA	BC + CA + CB	1,75
CAB	CA + AB + CB	1,59
CBA	CB + CA + BA	2,26

1.17. Table 33. Scenario 2 - Priority to evidence

Outranking matrix			
	Option A	Option B	Option C
Option A	-	0,15	0,21
Option B	0,85	-	0,32
Option C	0,79	0,68	-

Policy ranking permutations (6)		
Permutations	Pairings	Scores
ABC	AB + AC + BC	0,68
ACB	AC + CB + AB	1,04
BAC	BA + AC + BC	1,39
BCA	BC + CA + CB	1,79
CAB	CA + AB + CB	1,61
CBA	CB + CA + BA	2,32

1.18. Table 34. Scenario 3 - Priority to health and environment

Outranking matrix			
	Option A	Option B	Option C
Option A	-	0,19	0,29
Option B	0,81	-	0,38
Option C	0,71	0,62	-

Policy ranking permutations (6)		
Permutations	Pairings	Scores
ABC	AB + AC + BC	0,87
ACB	AC + CB + AB	1,11
BAC	BA + AC + BC	1,48
BCA	BC + CA + CB	1,71
CAB	CA + AB + CB	1,52
CBA	CB + CA + BA	2,13

1.19. **Table 35. Scenario 4 - Health first**

Outranking matrix			
	Option A	Option B	Option C
Option A	-	0,17	0,26
Option B	0,83	-	0,35
Option C	0,75	0,65	-

Policy ranking permutations (6)		
Permutations	Pairings	Scores
ABC	AB + AC + BC	0,78
ACB	AC + CB + AB	1,08
BAC	BA + AC + BC	1,43
BCA	BC + CA + CB	1,75
CAB	CA + AB + CB	1,57
CBA	CB + CA + BA	2,22

1.20. **Table 36 to 39. Scenario 5 - Aim: exposure zero**

Table 36. Sub scenario 5/A

Outranking matrix			
	Option A	Option B	Option C
Option A	-	0,29	0,29
Option B	0,71	-	0,38
Option C	0,71	0,62	-

Policy ranking permutations (6)		
Permutations	Pairings	Scores
ABC	AB + AC + BC	0,97
ACB	AC + CB + AB	1,21
BAC	BA + AC + BC	1,38
BCA	BC + CA + CB	1,71
CAB	CA + AB + CB	1,62
CBA	CB + CA + BA	2,03

Table 37. Sub scenario 5/B

Outranking matrix			
	Option A	Option B	Option C
Option A	-	0,44	0,44
Option B	0,56	-	0,50
Option C	0,56	0,50	-

Policy ranking permutations (6)		
Permutations	Pairings	Scores
ABC	AB + AC + BC	1,37
ACB	AC + CB + AB	1,37
BAC	BA + AC + BC	1,50
BCA	BC + CA + CB	1,56
CAB	CA + AB + CB	1,50
CBA	CB + CA + BA	1,63

Table 38. Sub scenario 5/C

Outranking matrix			
	Option A	Option B	Option C
Option A	-	0,26	0,26
Option B	0,75	-	0,35
Option C	0,75	0,65	-

Policy ranking permutations (6)		
Permutations	Pairings	Scores
ABC	AB + AC + BC	0,86
ACB	AC + CB + AB	1,16
BAC	BA + AC + BC	1,35
BCA	BC + CA + CB	1,75
CAB	CA + AB + CB	1,65
CBA	CB + CA + BA	2,14

Table 39. Sub scenario 5/D

Outranking matrix			
	Option A	Option B	Option C
Option A	-	0,30	0,30
Option B	0,70	-	0,38
Option C	0,70	0,62	-

Policy ranking permutations (6)		
Permutations	Pairings	Scores
ABC	AB + AC + BC	0,98
ACB	AC + CB + AB	1,22
BAC	BA + AC + BC	1,38
BCA	BC + CA + CB	1,70
CAB	CA + AB + CB	1,62
CBA	CB + CA + BA	2,02

6. SUMMARY OVERVIEW OF RESULTS

The MCA was carried out by using a step-wise approach, because there were two sets of options to consider (see Annex 6, section 3.2).

The MCA methodology was first applied to Options 1 to 4 (Aspect I: setting scientific criteria to identify EDs) in order to get the policy rankings for these options under all scenarios. The same MCA methodology (including the same criteria, weights, and performance assessment method) was then applied to Options A to C (Aspect II: implementation of the ED criteria / approach to regulatory decision making), in order to get the corresponding policy rankings.

The results obtained for the two sets of options are summarised in the following Tables 38 and 39, where for each scenario considered, the corresponding best policy ranking of the options is given (e.g., for scenario 1/A, the corresponding policy ranking means that Option 4 is better than Option 2, which is in turn better than Option 3, being Option 1 the worst among the four considered).

Table 40. Overview of results in terms of policy ranking of Options 1-4 (Aspect I: setting scientific criteria to identify EDs)

SENSITIVITY SCENARIO	POLICY RANKING OF OPTIONS
Scenario 1A – Homogeneity	4 > 2 > 3 > 1
Scenario 1B – Homogeneity	4 > 2 > 3 > 1
Scenario 2 – Priority to evidence	4 > 2 > 3 > 1
Scenario 3 – Health and Environment	4 > 2 > 3 > 1
Scenario 4 – Health first	4 > 2 > 3 > 1
Scenario 5A – Aim: exposure zero	4 > 2 > 3 > 1
Scenario 5B – Aim: exposure zero *	4 > 2 > 3 > 1
Scenario 5C – Aim: exposure zero	4 > 2 > 3 > 1
Scenario 5D – Aim: exposure zero	4 > 2 > 3 > 1
Overall ranking	WHO + potency (Option 4) > > WHO (Option 2) > > WHO + categories (Option 3) > > Interim criteria (Option 1)

* The policy ranking remains unchanged when the weight assigned to the human health criteria "hormone related diseases and disorders" is increased to 25% with the weight for "food safety" and "transmissible diseases caused by lack of appropriate disinfectants or insecticides" set at 7,5% each

Table 41. Overview of results in terms of policy ranking of Options A-C (Aspect II: implementation of the ED criteria / approach to regulatory decision making)

SENSITIVITY SCENARIO	POLICY RANKING OF OPTIONS
Scenario 1A – Homogeneity	C > B > A
Scenario 1B – Homogeneity	C > B > A
Scenario 2 – Priority to evidence	C > B > A
Scenario 3 – Health and Environment	C > B > A
Scenario 4 – Health first	C > B > A
Scenario 5A – Aim: exposure zero	C > B > A
Scenario 5B – Aim: exposure zero *	C > B > A
Scenario 5C – Aim: exposure zero	C > B > A
Scenario 5D – Aim: exposure zero	C > B > A
Overall ranking	Alignment socio-economic considerations (Option C) > > Alignment risk assessment (Option B) > > no change to regulatory decision making (Option A)

* The policy ranking changes to B > A > C when the weight assigned to the human health criteria "hormone related diseases and disorders" in scenario (5B) is further increased to 25% with the weight for "food safety" and "transmissible diseases caused by lack of appropriate disinfectants or insecticides" set at 7,5% each.

The results illustrated in tables 40 and 41 show that for both sets of options, the policy ranking remains the same whatever scenario is being considered, which indicates consistent results in terms of policy ranking.

Regarding the EU criteria to identify EDs, and considering the current legislative framework, Option 4 (WHO definition + potency) ranks consistently as the best in the MCA, followed by Option 2 (WHO definition).

Regarding the approaches to regulatory decision making, the policy ranking obtained through the MCA clearly identifies Option C (alignment of PPP with BP by introducing socio-economic considerations) as the best option, followed by Option B (alignment of PPP with BP by introducing further elements of risk assessment).

It is worth mentioning that the consistency of the policy rankings with respect to a change in the weights assigned to the different dimensions/criteria (whose values depend on the scenarios considered), was evaluated via a sensitivity analysis carried out by considering alternative scenarios (see Table 1). Consistent results have been obtained regardless the different weights (i.e. "importance") assigned to the dimensions in these different scenarios. Total weights on human health and environment have been set at up to 60% (Scenario "Aim: exposure zero" 5B), including up to a total of 20% priority to hormone related diseases and a total of 13.4% priority on environment-ED related issues (chemical quality of water and wildlife). In addition, scenario 5 (aim: exposure zero) is also ranking the options in a more conservative way (performance of the options), since this is based only on exposure and does not consider risk assessment based decision making as in scenarios 1 to 4. In summary, also with 33.4% total weight on ED issues related to protection of human health and the environment, and a regulatory decision making based on hazard (no consideration of risk decision making), the best performing policy ranking identifies Option 4 and Option A as the best, followed by Option 2 and Option B, respectively.

Additional simulations were run under Scenario 5/B (Aim: exposure zero) assuming a different distribution of the weights assigned to the Human Health criteria (hormone related diseases and disorders 0,25; food safety 0,075; transmissible diseases caused by lack of appropriate disinfectants or insecticides 0,75). In total, this scenario assumes a protective hazard based regulatory decision making and puts a total weight of 38,4 % on MCA-criteria directly related to ED effects (25% on hormone related diseases and disorders, 6,7 % on chemical quality of water and 6,7% on wildlife vertebrate populations). The MCA-analysis resulted in a different policy ranking for Options A to C: Option C was performing the worst as the ranking was B > A > C. However, the policy ranking of Options 1 to 4 remained unchanged, and Option 4 remained the best, followed by Option 2.