

## **Supporting information for: Glyphosate use, toxicity and occurrence in food**

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**Table S1.** Herbicides sales, in tones, in the EU between 2011 and 2018 [1].

Country	2011	2012	2013	2014	2015	2016	2017	2018
<b>Belgium</b>	2 482,59	2 720,22	2 486,43	2 519,65	2 372,95	2 261,41	2 334,15	2 648,07
<b>Bulgaria</b>	NA	773,569	705,944	652,446	636,209	2 007,43	1 698,98	2 606,57
<b>Czech Republic</b>	3 473,32	3 606,88	3 144,89	2 755,34	2 889,38	2 892,77	2 562,12	2 574,27
<b>Denmark</b>	3 692,16	4 563,85	2 935,90	1 238,59	1 903,40	1 914,30	1 904,68	NA
<b>Germany</b>	17 955,17	19 907,27	17 896,28	17 876,68	16 327,25	15 038,22	16 706,25	14 532,75
<b>Estonia</b>	357,09	436,89	434,25	425,85	472,28	604,15	462,64	428,20
<b>Ireland</b>	2 831,04	1 996,15	2 004,50	2 039,24	2 098,04	2 243,47	1 822,91	1 833,05
<b>Greece</b>	1 454,63	2 139,11	2 571,54	1 194,61	1 315,13	1 744,04	1 673,68	1 833,05
<b>Spain</b>	13 834,60	13 984,90	14 719,76	14 908,03	15 586,63	15 224,45	16 077,36	16 592,91
<b>France</b>	29 252,30	27 800,65	27 882,96	31 034,70	30 595,77	30 155,58	30 252,65	34 392,26
<b>Croatia</b>	NA	NA	829,44	889,12	820,90	742,56	668,74	717,67
<b>Italy</b>	8 327,29	8 055,92	7 750,99	7 798,75	7 950,43	7 486,50	7 114,26	6 880,13
<b>Cyprus</b>	169,99	137,00	127,68	158,41	116,84	157,65	138,93	160,58
<b>Latvia</b>	722,05	789,14	728,07	847,47	861,08	986,89	801,18	965,29
<b>Lithuania</b>	1 772,87	1 715,22	1 421,92	1 394,24	1 371,54	1 432,73	1 251,55	1 053,60
<b>Luxembourg</b>	102,07	96,47	82,78	88,60	83,35	61,71	60,77	54,18
<b>Hungary</b>	3 668,07	3,824,104	3 562,13	4 011,14	4 270,18	4 580,32	4 269,85	3 824,09
<b>Malta</b>	6,22	7,96	7,01	7,63	4,75	5,61	2,24	3,25

<b>The Netherlands</b>	3 024,61	3 042,16	2 766,24	3 266,27	2 880,90	2 745,75	2 901,79	2 978,20
<b>Austria</b>	1 505,16	1 544,52	1 227,02	1 375,82	1 317,22	1 281,49	1 296,94	1 276,93
<b>Poland</b>	12 408,49	12 654,36	12 518,20	12 073,41	12 190,01	12 693,32	13 655,48	11 370,74
<b>Portugal</b>	1 995,99	1 768,62	1 611,02	2 410,80	2 122,47	1 905,18	1 899,47	1 939,90
<b>Romania</b>	6 770,90	6 614,04	6 034,25	5 025,37	6 353,16	5 066,29	5 486,48	5 187,91
<b>Slovenia</b>	264,29	257,01	223,47	238,50	224,43	247,00	235,30	256,84
<b>Slovakia</b>	1 079,87	1 257,38	1 157,48	1 215,10	1 218,22	1 080,28	1 105,10	1 328,92
<b>Finland</b>	1 452,13	1 223,84	1 132,95	1 305,39	1 367,91	1 264,47	1 006,41	982,36
<b>Sweden</b>	2 136,11	2 087,12	3 545,63	2 103,77	1 829,32	1 633,01	1 731,24	1 482,79

NA, not available

**Table S2.** Herbicide applied per hectare of farmland in the EU between 2011 and 2018 [1,2].

Country	Farmland (ha)	Herbicide sales in the EU (kg)		Herbicide applied per farmland (kg/ha)	
		2011	2018	2011	2018
Germany	16 715 000	17 955 168	14 532 748	1,07	0,87
Austria	2 670 000	1 505 163	1 276 929	0,56	0,48
Belgium	1 354 000	2 482 593	2 648 068	1,83	1,96
Bulgaria	4 469 000	NA	2 606 572	NA	0,58
Cyprus	112 000	169 986	160 580	1,52	1,43
Croatia	1 563 000	NA	717 673	NA	0,46
Denmark	2 615 000	3 692 158	NA	1,41	NA
Slovakia	1 890 000	1 079 871	1 328 923	0,57	0,70
Slovenia	488 000	264 289	256 840	0,54	0,53
Spain	23 230 000	13 834 600	16 592 907	0,60	0,71
Estonia	995 000	357 091	428 200	0,36	0,43
Finland	2 194 000	1 452 126	982 359	0,66	0,45
France	27 814 000	29 252 304	34 392 257	1,05	1,24
Greece	4 554 000	1 454 632	1 833 052	0,32	0,40
Hungary	4 671 000	3 668 067	3 824 089	0,79	0,82

<b>Ireland</b>	4 884 000	2 831 037	1 833 054	0,58	0,38
<b>Italy</b>	12 598 000	8 327 293	6 880 130	0,66	0,55
<b>Latvia</b>	1 931 000	722 050	965 291	0,37	0,50
<b>Lithuania</b>	2 925 000	1 772 873	1 053 599	0,61	0,36
<b>Luxembourg</b>	131 000	102 073	54 178	0,78	0,41
<b>Malta</b>	11 000	6 223	3 247	0,57	0,30
<b>The Netherlands</b>	1 796 000	3 024 613	2 978 199	1,68	1,66
<b>Poland</b>	14 406 000	12 408 486	11 370 744	0,86	0,79
<b>Portugal</b>	3 642 000	1 995 991	1 939 900	0,55	0,53
<b>Czech Republic</b>	3 455 000	3 473 321	2 574 269	1,01	0,75
<b>Romania</b>	12 503 000	6 770 904	5 187 911	0,54	0,41
<b>Sweden</b>	3 021 000	2 136 107	1 482 790	0,71	0,49

NA, not available

**Table S3.** Glyphosate sales, in tones, in some European countries between 2011 and 2017 [3,4,13–21,5–12].

Country	2011	2012	2013	2014	2015	2016	2017
France	8 463,00	9 062,00	8 673,00	9 488,00	8 469,00	8 721,00	8 631,00
Germany	5 400,00	6 000,00	5 100,00	5 400,00	4 300,00	3 800,00	4 700,00
Denmark	1 941,31	1 402,52	1 388,86	626,84	853,75	1 140,70	1 241,40
Portugal	1 378,08	1 131,92	1 040,43	1 687,49	1 485,72	1 306,64	1 302,34
Czech Republic	962,61	1 081,32	935,47	858,51	697,69	772,33	750,53
Belgium	552,86	699,39	587,04	595,59	511,65	503,27	619,30
Estonia	227,90	292,06	c	276,97	c	411,61	NA

c, confidential; NA, not available

**Table S4.** Glyphosate applied per hectare of farmland in some European countries between 2011 and 2017 [2–6,14,20,21].

Country	Farmland	Glyphosate sales (kg)		Glyphosate applied per farmland (kg/ha)	
		2011	2017	2011	2017
France	27 814 000	8 463 000	8 631 000	0,30	0,31
Germany	16 715 000	5 400 000	4 700 000	0,32	0,28
Denmark	2 615 000	1 941 310	1 241 402	0,74	0,47
Portugal	3 642 000	1 378 081	1 302 344	0,38	0,36
Czech Republic	3 455 000	962 612	750 531	0,28	0,22
Belgium	1 354 000	552 861	619 295	0,41	0,46
Estonia	995 000	227 902	NA	0,23	NA

NA, not available

**Table S5** – Maximum residue levels in food [22].

MATRIX	MRL (µg/kg)
<b>FRUITS</b>	
Fruit juice	10
Pear	100
Orange	500
Apple	100
Strawberry	100
Blueberry	100
Lime	100
Raisin	100
Nut	100
Other fruits	100
<b>VEGETABLES</b>	
Yam	100
Potato	500
Asparagus	100
Pepper	100
Fresh peas	100
Other vegetables	100
<b>PULSES</b>	
Dry peas	10 000
Beans	2 000
Dry lentils	10 000
Other pulses	10 000

MATRIX	MRL (µg/kg)
<b>CEREALS</b>	
Barley	20 000
Pseudo cereals	100
Corn	10 000
Oat	20 000
Rice	100
Rye	10 000
Wheat	10 000
Other Cereals	100
<b>ANIMAL PRODUCTS</b>	
Egg	50
Meat	50
Fish	50
Milk	50
Honey	50
<b>OTHERS</b>	
Bread	10
Oil	100
Olive Oil	100
Water	0,1 <sup>a</sup>
Baby food	10

<sup>a</sup>, MRL units for water are in µg/L



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