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Supplemental Material

Prenatal Residential Proximity to Agricultural Pesticide Use and IQ in 7-Year-Old Children

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Table S1. Pesticide use (kg) in Monterey County in 2000, relative potency factors and toxicity-weighted pesticide use.

Pesticide	Pesticide Use (kg) Monterey 2000	Relative Potency Factor ^a	Toxicity Weighted Use Monterey 2000
Organophosphates (OPs)			
Acephate	34,792	1.95	67,777
Azinphos-methyl	100	1.32	131
Bensulide	19,346	0.04	710
Chlorpyrifos	25,357	1.00	25,357
Diazinon	56,434	0.16	8,800
Dimethoate	17,500	4.29	75,000
Disulfoton	5,976	15.00	89,639
Ethoprop	568	1.11	631
Fenamiphos	1,253	0.87	1,087
Malathion	37,161	0.01	263
Methamidophos	965	21.43	20,671
Methidathion	6,942	6.25	43,385
Naled	9,492	1.50	14,238
Oxydemeton-methyl	28,767	21.43	616,426
Phosmet	45	0.36	16
Total OPs	244,696	-	964,130
Carbamates			
Carbaryl	7,011	1.24	8,691
Carbofuran	8,868	15.00	133,023
Methiocarb	131	1.15	150
Methomyl	37,884	4.17	157,851
Oxamyl	3,530	6.25	22,060
Thiodicarb	2,490	5.56	13,835
Total Carbamates	59,914	-	335,611

^a Relative potency factors are based on male rat brain cholinesterase activity with chlorpyrifos as the index chemical (USEPA 2006; USEPA 2007).

Table S2. Correlation coefficients between agricultural use (kg) of neurotoxic pesticide groups within one kilometer of maternal residence during pregnancy (n=283).

	Organophosphates	Carbamates	Manganese-fungicides	Pyrethroids
Organophosphates	1.00			
Carbamates	0.82	1.00		
Manganese-fungicides	0.90	0.73	1.00	
Pyrethroids	0.82	0.68	0.79	1.00
Neonicotinoids	0.77	0.71	0.81	0.78

p<0.001 for all correlations.

Table S3. Adjusted^a association between a standard deviation increase in pesticide use (kg) within one kilometer of maternal residence during pregnancy and Full-Scale IQ at 7-years of age (n=255) from multiple pesticide models.

Neurotoxic Pesticides	β	(95% CI)
Model 1 - Organophosphates		
Acephate	-0.6	(-4.8, 3.6)
Chlorpyrifos	2.3	(-1.3, 5.8)
Diazinon	0.3	(-2.2, 2.9)
Malathion	0.2	(-1.7, 2.1)
Oxydemeton-methyl	-4.2	(-10.1, 1.8)
Model 2 - Neurotoxic pesticide groups		
Organophosphates toxicity weighted	-2.8	(-6.8, 1.3)
Carbamates toxicity weighted	1.2	(-1.6, 4.0)
Neonicotinoids	-0.5	(-3.8, 2.7)
Pyrethroids	-1.2	(-4.3, 1.9)
Mn-fungicides	1.0	(-3.5, 5.4)

^a Adjusted for child's age at assessment, sex, language of assessment, maternal education, maternal intelligence, maternal country of birth, maternal depression at 7-year visit, HOME Score at 7-year visit, household poverty level at 7-year visit and prenatal urinary DAPs.

References

- USEPA (United States Environmental Protection Agency). 2006. Organophosphorous Cumulative Risk Assessment - 2006 Update. Washington, D.C.
- USEPA. 2007. Revised N-Methyl Carbamate Cumulative Risk Assessment. Washington, D.C.