Online Supplementary material

Investigating the relationship between non-occupational pesticide exposure and metabolomic biomarkers

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Appendix 1. Detailed description of the cohort and covariates from the NFBC1966

Northern Finland Birth Cohort 1966 (NFBC1966): The NFBC1966 is a population-based, homogeneous, longitudinal birth cohort study comprised of offspring of pregnant women (n=12,055) with expected delivery dates during 1966, residing in two of the northernmost provinces of Finland (Oulu and Lapland)[1]. There were 12,058 live births, and these children were followed-up until the age of 46 years (Nordström et al., 2021). In 1997, at 31-years of age, participants' health, lifestyle, and occupation were assessed by postal questionnaires (n=11,541; 97% of the birth cohort alive and traced) (University of Oulu). Participants who responded (n=8,463) and resided in Northern Finland or in the Helsinki area were invited for a clinical examination (n=6,033). The current study is based on 31-year-old NFBC1966 participants. Study participants gave written informed consent for their data usage. All procedures performed were in accordance with the 1964 Declaration of Helsinki. The Ethics Committee of the Northern Ostrobothnia Hospital District has approved the NFBC1966 study. The flowchart of the study population is shown in **Figure S1**.

Body mass index (BMI): During clinical examination, height and weight measurements were used to calculate BMI (kg/m^2). BMI was then categorized as a dichotomous variable as ≤ 24.99 (underweight and normal weight) and > 24.99 (overweight and obese).

Season of blood sampling: The season of participant attendance at the clinical assessment was categorised according to the Finnish Meteorological Institute standard as high pesticide use season (summer (1 June–30 August) autumn (1 September–31 October)) and low pesticide use season (winter (1 November–31 March) spring (1 April–31 May)) [2].

The remaining covariates latitude of residence, socioeconomic position, educational status, lifestyle covariates (smoking, alcohol, physical activity) and dietary index were assessed by postal questionnaire responses at 31-years.

Latitude of residence: The residence of the participants at age 31 years was collected from the population register office. They were categorised as residing in Helsinki (60°N); the city of Oulu (65°N) and elsewhere in northernmost provinces of Oulu and Lapland (>65°N).

Socioeconomic position (SEP): SEP was categorised as I and II (professional), III (skilled worker), IV (unskilled worker), V (farmer) and VI (others-pensioner, student, long-term unemployed or not defined).

Educational status: Level of education was categorised into three options as i) Under 9 years of basic school education, ii) Basic school from 7-16 years old, and iii) Matriculation examination attended at 18 years old.

Smoking: The postal questionnaire asked participants about their smoking history, frequency, duration, and type of products smoked. Current smoking was then categorised as non-smokers (non-smoker and former/occasional) and smokers (active smoker) in the current study.

Alcohol consumption: Alcohol consumption during the 6 months prior to the questionnaire was calculated as grams per day (g/day) and has been described elsewhere [3]. It was further categorised according to WHO sex-specific classification as abstainer, low-risk drinker (≤20 and ≤40 g/day for women and men, respectively) or at-risk drinker (>20 and >40 g/day for women and men, respectively) [4].

Physical activity: The reported frequency and duration of leisure time and brisk physical activity were used to calculate the metabolic equivalent of task (MET) scores in hours per week, and these were ordered into quartiles. An intensity value of 3 METs is considered as light physical activity, and 5 METs as brisk physical activity [5].

Habitual dietary index: Diet score was calculated based on the consumption of various food in the previous 6 months and was reported on a structured six-point scale (from never/<once per month to several times per day) and has been described previously. The food frequency question included 32 products categorised under grain products, milk products, vegetables, meat, fruits and others (chocolates, sweets and packaged meals). An unhealthy diet included daily or frequent consumption of red meat and less frequent consumption of rye or crisp bread, berries or fruit, salads and vegetables. The score ranged from 0–5 and was categorised as healthy diet (<3 points) and unhealthy diet (4–5 points) [2].

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Appendix 2. Exposure assessment

Pesticide exposure scenarios – OPE: overall pesticide exposure; PEM: pesticide exposure in months; PEY: pesticide exposure in years; PEU: specific pesticides use reported.

Participants received a postal questionnaire at 31-years which included general health questions on lifestyle, environment, exposure to chemicals including pesticides. The questions included "How long have you been exposed to the following substance - pesticides and plant protection products in months (1-12 months) and in years (one to multiple years)?". In addition, "what type of pesticide and plant protection products (to specify the name of the pesticide used) were used" was asked simultaneously. Participants who reported no pesticide exposure at all were categorized as "no" (non-exposed), and those who reported pesticides exposures from 1 to 12 months were grouped as pesticide exposure in months (PEM); or from one to multiple years were grouped as pesticide exposure in years (PEY) as "yes" (exposed). The name of pesticides and plant protection products used by NFBC1966 participants is shown in **Supplementary Table S1**. Participants responses were categorized as pyrethroids, organophosphates, insect repellents, herbicides, fungicides, and plant growth regulators (Table S2). Due to the limited number, participants who reported no use of any pesticide were categorized as "no" (non-exposed), and those who reported specific name of pesticide used by them in **Supplementary Table S2** were merged together as "yes" (exposed). The overall pesticide exposure (OPE) variable combines the participants who reported pesticide exposures during months or in years or reporting the name of pesticides used. So, in NFBC1966, four pesticide exposure metrics [overall pesticide exposure (OPE), months of pesticide exposure (PEM), years of pesticide exposure (PEY) and specific pesticides (PEU)] were used to model exposure-metabolomics biomarkers associations. PEM and PEY were explored separately from overall exposure to assess the

severity of exposure, and PEU was also evaluated for accuracy of reporting. People who reported using specific pesticides (PEY) was highly positively correlated with people reporting pesticide exposure in months PEM ($r = 0.488$; $p < 0.0001$) and/or in years PEY ($r = 0.415$; $p < 0.0001$). The correlation coefficients show the reliability of using different pesticide exposures in the current study.

Blood sample measurements: After completion of postal questionnaire, NFBC1966 participants were invited for a clinical examination and blood samples were taken after an overnight fasting period from 8 to 11 hours, centrifuged immediately, and stored first at −20°C and later at −80°C. Blood samples were analyzed at NordLab Oulu (former name Oulu University Hospital, Laboratory), a testing laboratory (T113) accredited by the Finnish Accreditation Service (FINAS) (EN ISO 15189).

Appendix 3. Outcome assessment (metabolomics biomarkers): The quantification of the serum metabolomics biomarkers was performed by Proton Nuclear Magnetic Resonance (NMR) as described in Würtz et al., 2015. The metabolomics platform is based on three molecular windows (lipoprotein, low-molecular-weight metabolite data, and lipid) for each sample (Würtz et al., 2015). Subclasses of lipoproteins were defined as follows: six very large (XXL) very low-density lipoprotein (VLDL) subclasses greater than 75 nm – 31.3 nm in diameter, intermediate-density lipoprotein (IDL) at a diameter of 28.6 nm, three low-density lipoprotein (LDL) subclasses between 25.5 nm – 18.7 nm in diameter, and five high-density lipoprotein (HDL) subclasses between 14.3 nm – 8.7 nm in diameter. Lipoprotein components including triglycerides (TG), phospholipids (PL), cholesterol esters (CE), free cholesterol (FC), total lipids (L), and total cholesterol (C) were included in the quantification. In addition, apolipoproteins, amino acids including branched-chain and aromatic amino acids, ketone bodies, sphingolipids, glycolysis-related metabolites, fatty acids, inflammation, and fluid balance were assessed. The detailed list of names and abbreviations of circulating metabolites is given in the online supplementary material.

References:

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Appendix 4. Abbreviation of the metabolites measured in the NFBC1966 study

Total lipoproteins (P)	**Total lipids (L)**
Concentration of chylomicrons and extremely large VLDL particles [mol/L], XXL_VLDL_P	Total lipids in chylomicrons and extremely large VLDL [mmol/L], XXL_VLDL_L
Very-large VLDL [mol/L], XL_VLDL_P	Very-large VLDL [mmol/L], XL_VLDL_L
Large VLDL [mol/L], L_VLDL_P	Large VLDL [mmol/L], L_VLDL_L
Medium VLDL [mol/L], M_VLDL_P	Medium VLDL [mmol/L], M_VLDL_L
Small VLDL [mol/L], S_VLDL_P	Small VLDL [mmol/L], S_VLDL_L
Very-small VLDL [mol/L], XS_VLDL_P	Very-small VLDL [mmol/L], XS_VLDL_L
IDL [mol/L], IDL_P	IDL [mmol/L], IDL_L
Large LDL [mol/L], L_LDL_P	Large LDL [mmol/L], L_LDL_L
Medium LDL [mol/L], M_LDL_P	Medium LDL [mmol/L], M_LDL_L
Small LDL [mol/L], S_LDL_P	Small LDL [mmol/L], S_LDL_L
Very-large HDL [mol/L], XL_HDL_P	Very-large HDL [mmol/L], XL_HDL_L
Large HDL [mol/L], L_HDL_P	Large HDL [mmol/L], L_HDL_L
Medium HDL [mol/L], M_HDL_P	Medium HDL [mmol/L], M_HDL_L
Small HDL [mol/L], S_HDL_P	Small HDL [mmol/L], S_HDL_L
Triglycerides (TG)	**Total cholesterol (C)**
Triglycerides in chylomicrons and extremely large VLDL [mmol/L], XXL_VLDL_TG	Total cholesterol in chylomicrons and extremely large VLDL [mmol/L], XXL_VLDL_C
Very-large VLDL [mmol/L], XL_VLDL_TG	Very-large VLDL [mmol/L], XL_VLDL_C
Large VLDL [mmol/L], L_VLDL_TG	Large VLDL [mmol/L], L_VLDL_C
Medium VLDL [mmol/L], M_VLDL_TG	Medium VLDL [mmol/L], M_VLDL_C
Small VLDL [mmol/L], S_VLDL_TG	Small VLDL [mmol/L], S_VLDL_C
Very-small VLDL [mmol/L], XS_VLDL_TG	Very-small VLDL [mmol/L], XS_VLDL_C
Total VLDL [mmol/L], VLDL_TG	IDL [mmol/L], IDL_C
IDL [mmol/L], IDL_TG	Large LDL [mmol/L], L_LDL_C
Large LDL [mmol/L], L_LDL_TG	Medium LDL [mmol/L], M_LDL_C
Medium LDL [mmol/L], M_LDL_TG	Small LDL [mmol/L], S_LDL_C
Small LDL [mmol/L], S_LDL_TG	Total LDL [mmol/L], HDL_C
Total LDL [mmol/L], LDL_TG	Very-large HDL [mmol/L], XL_HDL_C
Very-large HDL [mmol/L], XL_HDL_TG	Large HDL [mmol/L], L_HDL_C
Large HDL [mmol/L], L_HDL_TG	Medium HDL [mmol/L], M_HDL_C
Medium HDL [mmol/L], M_HDL_TG	Small HDL [mmol/L], S_HDL_C
Small HDL [mmol/L], S_HDL_TG	Total HDL [mmol/L], HDL_C
Total HDL [mmol/L], HDL_TG	Serum cholesterol [mmol/L]
Serum TG [mmol/L], Serum TG	Remnant cholesterol [mmol/L]
Phospholipids (PL)	
Phospholipids in chylomicrons and extremely large VLDL [mmol/L], XXL_VLDL_PL	**Apolipoproteins**
Very-large VLDL [mmol/L], XL_VLDL_PL	Apolipoprotein A1 [g/L]
Large VLDL [mmol/L], L_VLDL_PL	Apolipoprotein B [g/L]
Medium VLDL [mmol/L], M_VLDL_PL	Ratio of Apolipoprotein B/Apolipoprotein A1 (Apo B/ Apo A1 ratio)
Small VLDL [mmol/L], S_VLDL_PL	
Very-small VLDL [mmol/L], XS_VLDL_PL	**Amino acids**
IDL [mmol/L], IDL_PL	Alanine [µmol/L]
Large LDL [mmol/L], L_LDL_PL	Glutamine [µmol/L]
Medium LDL [mmol/L], M_LDL_PL	Glycine [µmol/L]
Small LDL [mmol/L], S_LDL_PL	Histidine [µmol/L]
Very-large HDL [mmol/L], XL_HDL_PL	**Branched-chain amino acids**
Large HDL [mmol/L], L_HDL_PL	Isoleucine [µmol/L]
Medium HDL [mmol/L], M_HDL_PL	Leucine [µmol/L]
Small HDL [mmol/L], S_HDL_PL	Valine [µmol/L]

Cholesterol Esters (CE)	**Aromatic amino acids**
Cholesterol esters in chylomicrons and extremely large VLDL [mmol/L], XXL_VLDL_CE	Phenylalanine [µmol/L]
Very-large VLDL [mmol/L], XL_VLDL_CE	Tyrosine [µmol/L]
Large VLDL [mmol/L], L_VLDL_CE	**Ketone bodies**
Medium VLDL [mmol/L], M_VLDL_CE	Acetoacetate [µmol/L]
Small VLDL [mmol/L], S_VLDL_CE	Acetate [µmol/L]
Very-small VLDL [mmol/L], XS_VLDL_CE	beta-hydroxybutyrate [µmol/L]
IDL [mmol/L], IDL_CE	
Large LDL [mmol/L], L_LDL_CE	**Sphingolipids**
Medium LDL [mmol/L], M_LDL_CE	Sphingomyelin
Small LDL [mmol/L], S_LDL_CE	Total choline
Very-large HDL [mmol/L], XL_HDL_CE	
Large HDL [mmol/L], L_HDL_CE	**Glycolysis related metabolites**
Medium HDL [mmol/L], M_HDL_CE	Citrate [µmol/L]
Small HDL [mmol/L], S_HDL_CE	Glucose [mmol/L]
Esterified cholesterol [mmol/L], EstC	Glycerol [mmol/L]
Free cholesterol (FC)	Lactate [mmol/L]
Free cholesterol in chylomicrons and extremely large VLDL [mmol/L], XXL_VLDL_FC	Pyruvate [mmol/L]
Very-large VLDL [mmol/L], XL_VLDL_FC	
Large VLDL [mmol/L], L_VLDL_FC	**Fatty acids**
Medium VLDL [mmol/L], M_VLDL_FC	Total fatty acids [mmol/L]
Small VLDL [mmol/L], S_VLDL_FC	Monounsaturated fatty acids [mmol/L]
Very-small VLDL [mmol/L], XS_VLDL_FC	Saturated fatty acids [mmol/L]
IDL [mmol/L], IDL_FC	
Large LDL [mmol/L], L_LDL_FC	**Inflammation**
Medium LDL [mmol/L], M_LDL_FC	Alpha-1-acid glycoprotein [mmol/L]
Small LDL [mmol/L], S_LDL_FC	
Very-large HDL [mmol/L], XL_HDL_FC	**Fluid balance**
Large HDL [mmol/L], L_HDL_FC	Creatinine [µmol/L]
Medium HDL [mmol/L], M_HDL_FC	Albumin [standardized concentration units]
Small HDL [mmol/L], S_HDL_FC	
Free cholesterol [mmol/L]	

Supplementary Figures:

Figure S1. Flowchart of the study population in the NFBC1966

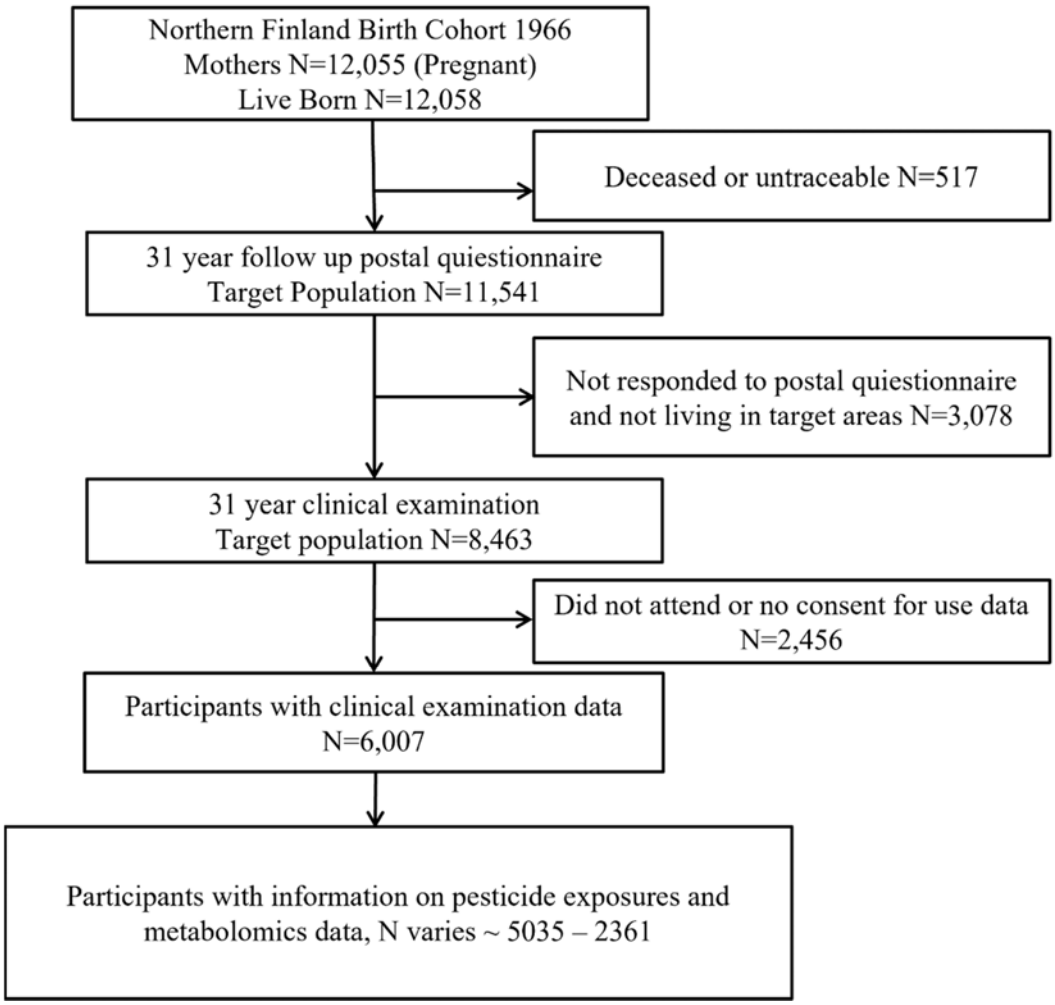

Table S1. Reported pesticides and plant protection products used by the NFBC1966 study population.

Pesticides common name	CAS	Type	Chemical group
Cypermethrin	52315-07-8	Insecticide	Pyrethroids
Deltamethrin	52918-63-5	Insecticide	Pyrethroids
Dichlorvos	62-73-7	Insecticide	Organophosphate
Dimethoate	60-51-5	Insecticide	Organophosphate
Daminozide	1596-84-5	Plant growth regulator	*N*-(Dimethylamino)succinamic acid
Glyphosate	1071-83-6	Herbicides	N-(Phosphonomethyl)glycine
Lambda-cyhalothrin	91465-08-6	Insecticide	Pyrethroids
Malathion	121-75-5	Insecticide	Organophosphate
Mancozeb	8018-01-7	Fungicide	Dithiocarbamates
MCPA (2-methyl-4-chlorophenoxyacetic acid)	94-74-6	Herbicide	Phenoxy herbicide
N,N-Diethyl-meta-toluamide	134-62-3	Insecticide	Diethyltoluamide
Permethrin	52645-53-1	Insecticide	Pyrethroids
Pirimicarb	23103-98-2	Insecticide	Aminopyrimidine
Pyrethrins	8003-34-7	Insecticide	Pyrethroids
Thiram	137-26-8	Fungicide	Tetramethylthiuram disulfide
Triadimefon	43121-43-3	Fungicide	Triazoles
Triforine	26644-46-2	Fungicide	N-alkylpiperazines
Miscellaneous plant protection products			

Table S2. Current use of different groups of pesticides and plant protection products in the NFBC1966 study population

All pesticides	**N (%)**
Pyrethroid	46 (40.71)
Organophosphates	5 (4.42)
Insect repellent	32 (28.32)
Fungicides	5 (4.42)
Herbicides	23 (20.35)
Plant growth regulators	2 (1.78)
PEU (exposed) (yes)*	**N= 113**
PEU (non-exposed) (no)*	**N= 4912**

*Participants who reported no use of any pesticide was categorized as “no” (non-exposed) and those who reported pesticide use in Table S1 and categorized in Table S2 merged together as “yes” (exposed).

Table S3. Descriptive statistics of the study population in NFBC1966 with overall pesticide exposure

		Overall pesticide exposure** (OPE)		
		No (N=4773)	Yes (N=264)	**P-value**
Age		31		
Sex, n %	5037			
Male		2242 (46.97)	180 (68.18)	<.0001
Female		2531 (53.03)	84 (31.82)	
BMI (kg/m^2), n %	5000			
Normal weight		2857 (60.29)	145 (55.56)	0.129
Overweight and Obese		1882 (39.71)	116 (44.44)	
Smoking status, n %	4966			
No smoker		2099 (44.57)	110 (42.80)	0.578
Smokers		2610 (55.43)	147 (57.20)	
Alcohol consumption (g/day), n %[a]	4878			
Abstainer		423 (9.15)	38 (14.96)	0.007
Low risk drinker		3934 (85.08)	205 (80.71)	
At-risk drinker		267 (5.77)	11 (4.33)	
Physical activity, n %	4981			
Low		1558 (33.00)	99 (38.08)	0.235
Medium		1626 (34.44)	84 (32.30)	
High		1537 (32.56)	77 (29.62)	
Socioeconomic position, n%	4972			
I + II (Professional)		1175 (24.92)	49 (18.92)	<.0001
III (Skilled worker)		1474 (31.26)	50 (19.31)	
IV (Unskilled worker)		1202 (25.49)	56 (21.62)	
V (Farmer)		112 (2.38)	68 (26.25)	
VI (Other)[b]		752 (15.95)	36 (13.90)	
Season of pesticide use[c], n %	4996			
High pesticide use season		3611 (76.26)	219 (83.91)	0.005
Low pesticide use season		1124 (23.74)	42 (16.09)	
Latitude of residence, n %	5037			
Oulu		925 (19.38)	27 (10.23)	<.0001
Other provinces of Oulu and Lapland		2998 (62.81)	211 (79.92)	
Helsinki		850 (17.81)	26 (9.85)	

** N varies due to missing data for some of the variables from N=5037 to N=4878.
Data are presented as n %.

P-value for differences between overall pesticide exposure with demographic, environmental, anthropometric, socioeconomic position, lifestyle (smoking, physical activity, alcohol consumption) and season of pesticide use covariates was analyzed by chi-square test and fisher test for categorical variables.

[a]Alcohol classification according to WHO sex-specific classification as abstainer, low risk drinker (≤20 g/day and ≤40 g/day for women and men, respectively) or at-risk drinker (> 20 g/day and>40 g/day for women and men, respectively).

[b]Includes students, pensioners, long-term unemployed, or not defined.

[c]High pesticide use season [summer (1 June–30 August) autumn (1 September–31 October)] and low pesticide use season [winter (1 November–31 March) spring (1 April–31 May)].

Table S4. Descriptive statistics of the study population with pesticide exposure in months, in years and specific pesticides use in NFBC1966

	Pesticide exposure months (PEM)**		**P-value**	**Pesticide exposure years** (PEY)**		**P-value**	**Specific pesticides** (PEU)**		**P-value**
	N=5017			N=5025			N=5025		
	No (N=4887)	Yes (N=130)		No (N=4890)	Yes (N=135)		No (N=4912)	Yes (N=113)	
Age	31						31		
Sex, n %	N=5017			N=5025			N=5025		
Male	2327 (47.62)	79 (60.77)	**0.0030**	2308 (47.20)	104 (77.04)	**<.0001**	2344 (47.72)	68 (60.18)	**0.0099**
Female	2560 (52.38)	51 (39.23)		2582 (52.80)	31 (22.96)		2568 (52.28)	45 (39.82)	
BMI (kg/m^2), n (%)	N=4980			N=4988			N=4988		
Normal weight	2917 (60.11)	72 (56.69)	0.4381	2923 (60.23)	71 (52.59)	0.0739	2929 (60.07)	65 (58.04)	0.6967
Overweight and Obese	1936 (39.89)	55 (43.31)		1930 (39.77)	64 (47.41)		1947 (39.93)	47 (41.96)	
Smoking status, n (%)	N=4946			N=4954			N=4954		
No smoker	2136 (44.31)	65 (52.00)	0.0875	2159 (44.78)	46 (34.59)	**0.0196**	2157 (44.54)	48 (43.24)	0.8470
Smokers	2685 (55.69)	60 (48.00)		2662 (55.22)	87 (65.41)		2686 (55.46)	63 (56.76)	
Alcohol consumption (g/day), n (%)[a]	N=4858			N=4867			N=4867		
Abstainer	444 (9.38)	15 (11.90)	0.6337	438 (9.24)	21 (16.28)	**0.0147**	442 (9.29)	17 (15.45)	0.0906
Low risk drinker	4018 (84.91)	104 (82.54)		4027 (84.99)	104 (80.62)		4042 (84.97)	89 (80.91)	
At-risk drinker	270 (5.71)	7 (5.56)		273 (5.76)	4 (3.10)		273 (5.74)	4 (3.64)	
Physical activity, n (%)	N=4961			N=4969			N=4969		
Low	1605 (33.20)	47 (37.01)	0.6570	1599 (33.07)	55 (41.04)	0.1146	1614 (33.24)	40 (35.40)	0.8838
Medium	1661 (34.36)	42 (33.07)		1667 (34.48)	37 (27.61)		1667 (34.33)	37 (32.74)	
High	1568 (32.44)	38 (29.92)		1569 (32.45)	42 (31.34)		1575 (32.43)	36 (31.86)	
Socioeconomic position, n (%)	N=4954			N=4962			N=4962		
I + II (Professional)	1188 (24.61)	31 (24.41)	**<.0001**	1202 (24.89)	20 (15.04)	**<.0001**	1231 (25.39)	22 (19.47)	**<.0001**
III (Skilled worker)	1491 (30.89)	32 (25.20)		1504 (31.15)	18 (13.53)		1201 (24.77)	21 (18.58)	
IV (Unskilled worker)	1231 (25.50)	18 (14.17)		1219 (25.24)	34 (25.56)		1494 (30.81)	28 (24.78)	
V (Farmer)	148 (3.07)	29 (22.83)		136 (2.82)	43 (32.33)		152 (3.13)	27 (23.89)	
VI (Other)[b]	769 (15.93)	17 (13.39)		768 (15.90)	18 (13.53)		771 (15.90)	15 (13.27)	
Season of pesticide use[c], n (%)	N=4976			N=4984			N=4984		
High pesticide use season	3710 (76.51)	104 (81.89)	0.1683	3701 (76.33)	120 (88.89)	**0.0004**	3730 (76.54)	91 (81.98)	0.2117
Low pesticide use season	1139 (23.49)	23 (18.11)		1148 (23.67)	15 (11.11)		1143 (23.46)	20 (18.02)	

Latitude of residence, n (%)	N=5017			N=5025			N=5025		
Oulu	930 (19.03)	21 (16.15)	0.2175	945 (19.33)	7 (5.19)	**<.0001**	943 (19.20)	9 (7.96)	**0.0011**
Other provinces of Oulu and Lapland	3101 (63.45)	92 (70.77)		3076 (62.90)	123 (91.11)		3109 (63.29)	90 (79.65)	
Helsinki	856 (17.52)	17 (13.08)		869 (17.77)	5 (3.70)		860 (17.51)	14 (12.39)	

** N varies due to missing data for some of the variables from N=5025 to N=4858.
Data are presented as n (%).

P-value for differences between PEM, PEY and PEU with demographic, environmental, anthropometric, socioeconomic position, lifestyle (smoking, physical activity, alcohol consumption) and season of pesticide use covariates was analyzed by chi-square/fisher's test for categorical variables.

[a] Alcohol classification according to WHO sex-specific classification as abstainer, low risk drinker (≤20 g/day and ≤40 g/day for women and men, respectively) or at-risk drinker (> 20 g/day and>40 g/day for women and men, respectively).

[b]Includes students, pensioners, long-term unemployed, or not defined.

[c]High pesticide use season (summer (1 June–30 August) autumn (1 September–31 October)) and low pesticide use season (winter (1 November–31 March) spring (1 April–31 May)).

Table S5. Spearman correlation analyses on the association between pesticide exposure in months, years, specific pesticides use and pesticide exposure overall with circulating metabolites.

	Variable	Pesticide exposure in months (PEM)		Pesticide exposure in years (PEY)		Specific pesticides use (PEU)		Pesticide exposure overall (OPE)	
		rho	***P-value***	***rho***	***P-value***	***rho***	***P-value***	***rho***	***P-value***
	Lipoprotein subclasses								
1.	Concentration of chylomicrons and extremely large VLDL particles [mol/L]	0.028	0.053	0.047	0.001	0.033	0.023	0.056	0.0001
2.	Very-large VLDL [mol/L]	0.024	0.093	0.040	0.005	0.028	0.049	0.047	0.001
3.	Large VLDL [mol/L]	0.027	0.062	0.037	0.010	0.028	0.052	0.046	0.001
4.	Medium VLDL [mol/L]	0.026	0.076	0.038	0.009	0.027	0.059	0.045	0.002
5.	Small VLDL [mol/L]	0.026	0.077	0.039	0.008	0.020	0.158	0.044	0.002
6.	Very-small VLDL [mol/L]	0.018	0.215	0.032	0.026	0.012	0.400	0.032	0.026
7.	IDL [mol/L]	0.007	0.637	-0.007	0.641	0.002	0.871	0.002	0.894
8.	Large LDL [mol/L]	0.016	0.278	0.029	0.043	0.008	0.586	0.027	0.061
9.	Medium LDL [mol/L]	0.016	0.256	0.030	0.035	0.011	0.462	0.029	0.048
10.	Small LDL [mol/L]	0.019	0.194	0.029	0.045	0.011	0.461	0.029	0.041
11.	Very-large HDL [mol/L]	-0.002	0.890	-0.037	0.011	-0.012	0.392	-0.030	0.037
12.	Large HDL [mol/L]	-0.022	0.126	-0.054	0.0002	-0.042	0.004	-0.063	<.0001
13.	Medium HDL [mol/L]	-0.024	0.095	-0.034	0.020	-0.048	0.001	-0.051	0.0004
14.	Small HDL [mol/L]	-0.012	0.421	0.004	0.803	-0.026	0.069	-0.016	0.261
	Triglycerides								
15.	Triglycerides in chylomicrons and extremely large VLDL [mmol/L]	0.028	0.054	0.048	0.001	0.033	0.021	0.057	<.0001
16.	Very-large VLDL [mmol/L]	0.023	0.112	0.037	0.010	0.027	0.065	0.044	0.002
17.	Large VLDL [mmol/L]	0.026	0.074	0.035	0.016	0.026	0.073	0.043	0.003
18.	Medium VLDL [mmol/L]	0.023	0.109	0.034	0.017	0.025	0.084	0.041	0.004
19.	Small VLDL [mmol/L]	0.027	0.067	0.033	0.022	0.023	0.106	0.042	0.004
20.	Very-small VLDL [mmol/L]	0.025	0.089	0.026	0.077	0.017	0.251	0.034	0.019
21.	Total VLDL [mmol/L]	0.025	0.084	0.034	0.018	0.024	0.098	0.042	0.004
22.	IDL [mmol/L]	0.018	0.217	0.016	0.264	0.011	0.457	0.021	0.143
23.	Large LDL [mmol/L]	0.015	0.299	0.017	0.230	0.007	0.633	0.019	0.174
24.	Medium LDL [mmol/L]	0.016	0.268	0.015	0.285	0.009	0.533	0.019	0.179
25.	Small LDL [mmol/L]	0.021	0.143	0.022	0.125	0.011	0.456	0.028	0.053
26.	Total LDL [mmol/L]	0.016	0.266	0.018	0.215	0.008	0.588	0.021	0.150

27.	Very-large HDL [mmol/L]	0.017	0.254	0.010	0.479	0.008	0.575	0.014	0.333
28.	Large HDL [mmol/L]	-0.002	0.882	-0.014	0.322	-0.010	0.484	-0.019	0.183
29.	Medium HDL [mmol/L]	0.013	0.377	0.016	0.267	0.005	0.734	0.017	0.228
30.	Small HDL [mmol/L]	0.021	0.140	0.044	0.002	0.028	0.056	0.046	0.001
31.	Total HDL [mmol/L]	0.014	0.334	0.016	0.258	0.008	0.582	0.015	0.297
32.	Serum TG [mmol/L]	0.026	0.068	0.032	0.025	0.021	0.145	0.039	0.006
	Phospholipids								
33.	Phospholipids in chylomicrons and extremely large VLDL [mmol/L]	0.024	0.095	0.035	0.015	0.020	0.160	0.043	0.003
34.	Very-large VLDL [mmol/L]	0.028	0.057	0.041	0.005	0.026	0.069	0.049	0.001
35.	Large VLDL [mmol/L]	0.030	0.037	0.038	0.009	0.029	0.048	0.048	0.001
36.	Medium VLDL [mmol/L]	0.026	0.067	0.039	0.007	0.026	0.067	0.046	0.001
37.	Small VLDL [mmol/L]	0.024	0.099	0.034	0.019	0.017	0.251	0.039	0.006
38.	Very-small VLDL [mmol/L]	0.012	0.392	0.024	0.095	0.007	0.614	0.021	0.142
39.	IDL [mmol/L]	0.011	0.429	0.026	0.068	0.004	0.768	0.022	0.132
40.	Large LDL [mmol/L]	0.014	0.330	0.027	0.062	0.004	0.765	0.024	0.101
41.	Medium LDL [mmol/L]	0.020	0.165	0.030	0.037	0.008	0.591	0.030	0.036
42.	Small LDL [mmol/L]	0.023	0.118	0.026	0.072	0.008	0.594	0.029	0.041
43.	Very-large HDL [mmol/L]	-0.008	0.581	-0.048	0.001	-0.019	0.187	-0.044	0.002
44.	Large HDL [mmol/L]	-0.025	0.088	-0.053	0.0002	-0.045	0.002	-0.065	<.0001
45.	Medium HDL [mmol/L]	-0.025	0.089	-0.035	0.016	-0.049	0.001	-0.052	0.0003
46.	Small HDL [mmol/L]	-0.025	0.086	-0.023	0.118	-0.052	0.0003	-0.040	0.006
	Cholesterol Esters								
47.	Cholesterol esters in chylomicrons and extremely large VLDL [mmol/L]	0.031	0.030	0.049	0.0006	0.042	0.004	0.061	<.0001
48.	Very-large VLDL [mmol/L]	0.024	0.102	0.049	0.001	0.039	0.007	0.057	<.0001
49.	Large VLDL [mmol/L]	0.026	0.071	0.047	0.001	0.038	0.008	0.055	0.0001
50.	Medium VLDL [mmol/L]	0.030	0.038	0.044	0.003	0.033	0.021	0.052	0.0003
51.	Small VLDL [mmol/L]	0.019	0.172	0.045	0.002	0.015	0.293	0.043	0.003
52.	Very-small VLDL [mmol/L]	0.016	0.259	0.036	0.012	0.011	0.458	0.035	0.016
53.	IDL [mmol/L]	0.017	0.250	0.033	0.022	0.008	0.602	0.030	0.035
54.	Large LDL [mmol/L]	0.017	0.241	0.032	0.027	0.009	0.501	0.030	0.038
55.	Medium LDL [mmol/L]	0.015	0.305	0.031	0.029	0.012	0.410	0.028	0.050
56.	Small LDL [mmol/L]	0.016	0.275	0.029	0.046	0.011	0.445	0.027	0.060
57.	Very-large HDL [mmol/L]	0.006	0.683	-0.017	0.236	-0.004	0.807	-0.007	0.626
58.	Large HDL [mmol/L]	-0.022	0.136	-0.056	<.0001	-0.039	0.006	-0.063	<.0001
59.	Medium HDL [mmol/L]	-0.031	0.034	-0.039	0.006	-0.054	0.0002	-0.058	<.0001
60.	Small HDL [mmol/L]	-0.005	0.726	0.017	0.251	-0.006	0.658	-0.002	0.906
61.	Esterified cholesterol [mmol/L]	0.013	0.368	0.012	0.409	-0.008	0.573	0.011	0.430
	Free cholesterol								

62.	Free cholesterol in chylomicrons and extremely large VLDL [mmol/L]	0.023	0.107	0.039	0.006	0.023	0.111	0.045	0.002
63.	Very-large VLDL [mmol/L]	0.026	0.071	0.045	0.002	0.027	0.063	0.051	0.0004
64.	Large VLDL [mmol/L]	0.028	0.055	0.038	0.008	0.026	0.071	0.047	0.001
65.	Medium VLDL [mmol/L]	0.025	0.086	0.035	0.014	0.024	0.101	0.042	0.004
66.	Small VLDL [mmol/L]	0.022	0.123	0.036	0.014	0.014	0.325	0.038	0.008
67.	Very-small VLDL [mmol/L]	0.009	0.538	0.029	0.038	0.009	0.507	0.023	0.104
68.	IDL [mmol/L]	0.011	0.435	0.024	0.103	0.004	0.807	0.019	0.172
69.	Large LDL [mmol/L]	0.013	0.351	0.027	0.059	0.006	0.671	0.024	0.097
70.	Medium LDL [mmol/L]	0.019	0.181	0.032	0.025	0.011	0.449	0.032	0.028
71.	Small LDL [mmol/L]	0.023	0.106	0.035	0.016	0.014	0.329	0.037	0.010
72.	Very-large HDL [mmol/L]	0.005	0.735	-0.032	0.025	-0.006	0.691	-0.019	0.189
73.	Large HDL [mmol/L]	-0.021	0.153	-0.055	0.0001	-0.036	0.012	-0.062	<.0001
74.	Medium HDL [mmol/L]	-0.027	0.059	-0.032	0.026	-0.046	0.001	-0.053	0.0003
75.	Small HDL [mmol/L]	-0.020	0.163	-0.007	0.639	-0.040	0.006	-0.026	0.070
76.	Free cholesterol [mmol/L]	0.009	0.535	0.015	0.299	-0.004	0.763	0.011	0.449
	Total lipids								
77.	Total lipids in chylomicrons and extremely large VLDL [mmol/L]	0.028	0.054	0.047	0.001	0.032	0.025	0.055	0.0001
78.	Very-large VLDL [mmol/L]	0.025	0.089	0.041	0.005	0.029	0.047	0.048	0.001
79.	Large VLDL [mmol/L]	0.027	0.059	0.038	0.009	0.028	0.049	0.047	0.001
80.	Medium VLDL [mmol/L]	0.026	0.073	0.038	0.008	0.028	0.057	0.046	0.002
81.	Small VLDL [mmol/L]	0.025	0.085	0.039	0.007	0.019	0.178	0.044	0.003
82.	Very-small VLDL [mmol/L]	0.017	0.250	0.032	0.025	0.012	0.418	0.031	0.031
83.	IDL [mmol/L]	0.014	0.330	0.029	0.045	0.007	0.652	0.026	0.077
84.	Large LDL [mmol/L]	0.015	0.285	0.029	0.042	0.008	0.581	0.027	0.062
85.	Medium LDL [mmol/L]	0.016	0.256	0.031	0.034	0.011	0.451	0.029	0.046
86.	Small LDL [mmol/L]	0.019	0.195	0.029	0.040	0.011	0.443	0.029	0.039
87.	Very-large HDL [mmol/L]	-0.001	0.922	-0.036	0.013	-0.012	0.419	-0.029	0.048
88.	Large HDL [mmol/L]	-0.022	0.127	-0.054	0.0002	-0.041	0.004	-0.063	<.0001
89.	Medium HDL [mmol/L]	-0.025	0.084	-0.034	0.018	-0.048	0.001	-0.052	0.0003
90.	Small HDL [mmol/L]	-0.013	0.368	0.003	0.832	-0.027	0.061	-0.018	0.219
	Total cholesterol								
91.	Total cholesterol in chylomicrons and extremely large VLDL [mmol/L]	0.028	0.050	0.047	0.001	0.036	0.013	0.056	<.0001
92.	Very-large VLDL [mmol/L]	0.025	0.079	0.049	0.001	0.034	0.018	0.055	0.0001
93.	Large VLDL [mmol/L]	0.027	0.063	0.043	0.003	0.033	0.022	0.052	0.0004
94.	Medium VLDL [mmol/L]	0.027	0.059	0.041	0.005	0.029	0.041	0.048	0.0009
95.	Small VLDL [mmol/L]	0.021	0.149	0.043	0.003	0.015	0.304	0.042	0.004
96.	Very-small VLDL [mmol/L]	0.013	0.351	0.035	0.016	0.010	0.483	0.031	0.032
97.	IDL [mmol/L]	0.015	0.294	0.030	0.035	0.006	0.662	0.027	0.058

98.	Large LDL [mmol/L]	0.016	0.263	0.031	0.033	0.009	0.547	0.029	0.047
99.	Medium LDL [mmol/L]	0.016	0.277	0.032	0.029	0.012	0.416	0.029	0.045
100.	Small LDL [mmol/L]	0.017	0.236	0.030	0.037	0.012	0.422	0.029	0.043
101.	Total LDL [mmol/L]	0.016	0.263	0.031	0.033	0.010	0.484	0.029	0.046
102.	Very-large HDL [mmol/L]	0.005	0.716	-0.022	0.129	-0.004	0.759	-0.011	0.445
103.	Large HDL [mmol/L]	-0.021	0.143	-0.056	0.0001	-0.038	0.008	-0.062	<.0001
104.	Medium HDL [mmol/L]	-0.029	0.041	-0.037	0.010	-0.052	0.0003	-0.057	<.0001
105.	Small HDL [mmol/L]	-0.009	0.554	0.013	0.357	-0.013	0.377	-0.007	0.615
106.	Total HDL [mmol/L]	-0.019	0.184	-0.045	0.002	-0.046	0.002	-0.056	0.0001
107.	Serum cholesterol [mmol/L]	0.013	0.370	0.015	0.304	-0.005	0.718	0.014	0.349
108.	Remnant cholesterol [mmol/L]	0.023	0.119	0.039	0.007	0.015	0.309	0.040	0.005
	Apolipoproteins								
109.	Apolipoprotein A1 [g/L]	-0.014	0.331	-0.035	0.015	-0.043	0.003	-0.046	0.002
110.	Apolipoprotein B [g/L]	0.025	0.078	0.038	0.009	0.015	0.290	0.041	0.004
111.	Ratio of Apo B/Apo A1	0.034	0.019	0.062	<.0001	0.042	0.003	0.069	<.0001
	Amino acids								
112.	Alanine [µmol/L]	0.002	0.864	-0.009	0.532	-0.011	0.447	-0.011	0.455
113.	Glutamine [µmol/L]	-0.007	0.619	0.021	0.147	-0.008	0.583	0.003	0.844
114.	Glycine [µmol/L]	-0.017	0.264	-0.016	0.286	-0.018	0.227	-0.027	0.066
115.	Histidine [µmol/L]	0.006	0.656	-0.006	0.672	-0.004	0.779	-0.003	0.826
	Branched-chain amino acids								
116.	Isoleucine [µmol/L]	0.022	0.131	0.012	0.389	0.003	0.821	0.017	0.233
117.	Leucine [µmol/L]	0.026	0.072	0.026	0.078	0.003	0.845	0.027	0.059
118.	Valine [µmol/L]	0.018	0.214	0.013	0.370	-0.008	0.594	0.017	0.249
	Aromatic amino acids								
119.	Phenylalanine [µmol/L]	0.028	0.054	0.025	0.079	0.026	0.076	0.027	0.058
120.	Tyrosine [µmol/L]	0.001	0.959	0.018	0.225	0.002	0.916	0.004	0.792
	Ketone bodies								
121.	Acetoacetate [µmol/L]	0.005	0.735	-0.017	0.237	-0.032	0.027	-0.014	0.323
122.	Acetate [µmol/L]	0.011	0.444	0.015	0.292	-0.009	0.513	0.012	0.388
123.	beta-hydroxybutyrate [µmol/L]	0.012	0.403	-0.020	0.167	-0.022	0.127	-0.011	0.463
	Sphingolipids								
124.	Sphingomyelin	0.001	0.948	-0.018	0.206	-0.031	0.0304	-0.020	0.159
125.	Total choline	0.002	0.895	-0.010	0.473	-0.027	0.0588	-0.014	0.325
	Glycolysis related metabolites								
126.	Citrate [µmol/L]	0.014	0.339	0.004	0.790	0.006	0.660	0.007	0.609
127.	Glucose [mmol/L]	-0.001	0.939	0.022	0.133	-0.024	0.097	0.009	0.553
128.	Glycerol [mmol/L]	0.0004	0.977	0.011	0.484	0.025	0.097	0.014	0.349

129.	Lactate [mmol/L]	-0.015	0.294	-0.015	0.285	-0.015	0.284	-0.022	0.131
130.	Pyruvate [mmol/L]	0.018	0.207	0.006	0.667	0.002	0.899	0.019	0.198
	Fatty acids								
131.	Total fatty acids [mmol/L]	0.009	0.511	0.003	0.862	-0.013	0.379	0.002	0.866
132.	Monounsaturated fatty acids [mmol/L]	0.017	0.242	0.007	0.615	-0.005	0.736	0.013	0.385
133.	Saturated fatty acids [mmol/L]	0.012	0.422	0.016	0.265	-0.001	0.965	0.014	0.344
	Inflammation								
134.	Alpha-1-acid glycoprotein	-0.008	0.603	-0.006	0.667	-0.021	0.155	-0.016	0.268
	Fluid balance								
135.	Creatinine [μmol/L]	-0.011	0.436	0.030	0.037	-0.011	0.467	0.008	0.587
136.	Albumin [standardized concentration units]	0.009	0.524	0.002	0.891	-0.023	0.108	-0.002	0.895

Pesticide exposure overall

Table S6. Multivariable regression analyses of pesticide exposure overall with total lipoprotein subclasses with standardised metabolomic biomarkers in men

Pesticide exposure overall, β (95% CI), Males						
Total lipoproteins	**Unadjusted**	**+ BMI**	**+ socioeconomic position**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_P	0.088 (-0.068, 0.244)	0.106 (-0.045, 0.258)	0.095 (-.067, 0.258)	0.102 (-.061, 0.265)	0.103 (-.062, 0.267)	0.102 (-.063, 0.267)
XL_VLDL_P	0.010 (-0.145, 0.165)	0.026 (-0.126, 0.177)	0.014 (-.148, 0.176)	0.013 (-.149, 0.175)	0.019 (-.145, 0.184)	0.021 (-.144, 0.185)
L_VLDL_P	-0.022 (-0.173, 0.129)	-0.007 (-0.154, 0.139)	0.017 (-.139, 0.174)	0.013 (-.145, 0.169)	0.023 (-.136, 0.182)	0.026 (-.133, 0.185)
M_VLDL_P	0.0099 (-0.137, 0.157)	0.026 (-0.116, 0.168)	0.046 (-.107, 0.198)	0.042 (-.112, 0.195)	0.045 (-.110, 0.199)	0.045 (-.110, 0.199)
S_VLDL_P	-0.000015 (-0.138, 0.138)	0.018 (-0.115, 0.151)	0.025 (-.118, 0.168)	0.018 (-.126, 0.162)	0.018 (-.128, 0.164)	0.0089 (-.137, 0.155)
XS_VLDL_P	0.0056 (-0.141, 0.152)	0.025 (-0.119, 0.168)	-.020 (-.174, 0.134)	-.033 (-.188, 0.121)	-.036 (-.192, 0.121)	-.054 (-.209, 0.102)
IDL_P	-0.0068 (-0.151, 0.137)	-0.0048 (-0.149, 0.139)	0.015 (-.142, 0.172)	0.021 (-.136, 0.178)	0.011 (-.149, 0.170)	0.018 (-.142, 0.177)
L_LDL_P	0.049 (-0.102, 0.202)	0.062 (-0.089, 0.214)	-.017 (-.179, 0.145)	-.034 (-.196, 0.128)	-.029 (-.193, 0.135)	-.048 (-.210, 0.115)
M_LDL_P	0.037 (-0.113, 0.187)	0.047 (-0.102, 0.197)	-.025 (-.185, 0.135	-.041 (-.201, 0.119)	-.035 (-.196, 0.127)	-.052 (-.213, 0.108)
S_LDL_P	0.030 (-0.121, 0.181)	0.039 (-0.110, 0.189)	-.032 (-.192, 0.129)	-.047 (-.208, 0.113)	-.038 (-.200, 0.125)	-.055 (-.216, 0.106)
XL_HDL_P	0.047 (-0.102, 0.197)	0.036 (-0.109, 0.182)	-.008 (-.165, 0.149)	-.00021 (-.158, 0.157)	0.0066 (-.153, 0.166)	-.00063 (-.159, 0.159)
L_HDL_P	-0.0037 (-0.155, 0.147)	-0.019 (-0.165, 0.128)	-.052 (-.210, 0.105)	-.064 (-.222, 0.094)	-.045 (-.204, 0.114)	-.047 (-.206, 0.112)
M_HDL_P	-0.093 (-0.241, 0.055)	-0.106 (-0.254, 0.043)	-.102 (-.261, 0.057)	-.121 (-.279, 0.038)	-.088 (-.246, 0.069)	-.082 (-.237, 0.074)
S_HDL_P	-0.069 (-0.219, 0.081)	-0.077 (-0.228, 0.074)	-.112 (-.274, 0.049)	-.135 (-.296, 0.026)	-.105 (-.266, 0.055)	-.113 (-.272, 0.046)

Table S7. Multivariable regression analyses of pesticide exposure overall with total lipoprotein subclasses with standardised metabolomic biomarkers in women

Pesticide exposure overall, β (95% CI), Females						
Total lipoprotein	**Unadjusted**	**+ BMI**	**+ socioeconomic position**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_P	0.166 (-0.044, 0.377)	0.141 (-0.061, 0.343)	0.131 (-.075, 0.337)	0.125 (-.082, 0.332)	0.136 (-.073, 0.344)	0.139 (-.069, 0.347)
XL_VLDL_P	0.017 (-0.207, 0.241)	-0.0012 (-0.219, 0.216)	-.022 (-.243, 0.198)	-.038 (-.260, 0.184)	-.030 (-.253, 0.193)	-.019 (-.242, 0.204)
L_VLDL_P	0.0083 (-0.212, 0.228)	-0.0074 (-0.219, 0.205)	-.014 (-.229, 0.202)	-.0278 (-.245, 0.189)	0.018 (-.203, 0.238)	0.029 (-.191, 0.249)
M_VLDL_P	0.103 (-0.101, 0.307)	0.080 (-0.116, 0.276)	0.057 (-.142, 0.256)	0.046 (-.154, 0.246)	0.082 (-.121, 0.284)	0.095 (-.107, 0.297)
S_VLDL_P	0.135 (-0.082, 0.352)	0.117 (-0.092, 0.325)	0.077 (-.135, 0.288)	0.053 (-.159, 0.265)	0.083 (-.131, 0.297)	0.083 (-.132, 0.297)
XS_VLDL_P	0.172 (-0.052, 0.397)	0.160 (-0.059, 0.380)	0.097 (-.126, 0.319)	0.074 (-.149, 0.297)	0.099 (-.126, 0.325)	0.096 (-.129, 0.321)
IDL_P	0.025 (-0.235, 0.285)	0.046 (-0.215, 0.308)	0.058 (-.208, 0.324)	0.058 (-.211, 0.326)	0.045 (-.225, 0.316)	0.045 (-.226, 0.315)
L_LDL_P	0.130 (-0.095, 0.356)	0.121 (-0.103, 0.345)	0.046 (-.179, 0.273)	0.022 (-.204, 0.248)	0.054 (-.174, 0.282)	0.053 (-.174, 0.281)
M_LDL_P	0.137 (-0.088, 0.363)	0.127 (-0.097, 0.351)	0.057 (-.169, 0.283)	0.033 (-.193, 0.258)	0.074 (-.154, 0.302)	0.073 (-.154, 0.300)
S_LDL_P	0.141 (-0.086, 0.367)	0.131 (-0.094, 0.356)	0.065 (-.163, 0.292)	0.039 (-.187, 0.266)	0.082 (-.148, 0.311)	0.079 (-.149, 0.309)
XL_HDL_P	0.018 (-0.179, 0.216)	0.051 (-0.144, 0.245)	0.035 (-.163, 0.232)	0.011 (-.188, 0.209)	-.017 (-.218, 0.184)	-.037 (-.236, 0.162)
L_HDL_P	-0.220 (-.418, -0.023)	-0.187 (-0.379, 0.0053)	-.211 (-.407, -.016)	-.236 (-.432, -.039)	-.274 (-.473, -.076)	-.274 (-.473, -.075)
M_HDL_P	-0.288 (-0.516, -0.059)	-0.280 (-0.509, -0.051)	-.308 (-.540, -.075)	-.322 (-.556, -.088)	-.349 (-.586, -.113)	-.331 (-.566, -.096)
S_HDL_P	-0.246 (-0.484, -0.0082)	-0.249 (-0.488, -0.0096)	-.304 (-.546, -.062)	-.323 (-.565, -.080)	-.331 (-.577, -.085)	-.322 (-.566, -.078)

Table S8. Multivariable regression analyses of pesticide exposure overall with triglycerides subclasses with standardised metabolomic biomarkers in men

Pesticide exposure overall, β (95% CI), Males						
Triglycerides	**Unadjusted**	**+ BMI**	**+ socioeconomic position**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_TG	0.084 (-0.070, 0.238)	0.101 (-0.048, 0.250)	0.089 (-.071, 0.248)	0.096 (-.065, 0.256)	0.098 (-.065, 0.259)	0.097 (-.065, 0.259)
XL_VLDL_TG	-0.0069 (-0.157, 0.143)	0.0059 (-0.141, 0.153)	-.0011 (-.158, 0.156)	-.0035 (-.161, 0.154)	0.0052 (-.154, 0.165)	0.0088 (-.151, 0.168)
L_VLDL_TG	-0.048 (-0.196, 0.100)	-0.035 (-0.179, 0.109)	-.0057 (-.160, 0.149)	-.011 (-.166, 0.143)	0.0026 (-.154, 0.159)	0.0068 (-.149, 0.163)
M_VLDL_TG	-0.010 (-0.152, 0.131)	0.0025 (-0.134, 0.139)	0.029 (-.118, 0.176)	0.025 (-.122, 0.172)	0.031 (-.118, 0.179)	0.033 (-.116, 0.182)
S_VLDL_TG	-0.0087 (-0.143, 0.126)	0.0064 (-0.123, 0.136)	0.029 (-.110, 0.168)	0.023 (-.117, 0.163)	0.026 (-.116, 0.167)	0.021 (-.121, 0.163)
XS_VLDL_TG	-0.0092 (-0.147, 0.128)	0.0062 (-0.127, 0.139)	0.0016 (-.141, 0.144)	-.0101 (-.153, 0.133)	-.0074 (-.152, 0.138)	-.022 (-.167, 0.122)
VLDL_TG	-0.000079 (-0.145, 0.145)	0.014 (-0.126, 0.154)	0.033 (-.117, 0.184)	0.029 (-.122, 0.179)	0.034 (-.118, 0.187)	0.034 (-.119, 0.187)
IDL_TG	0.014 (-0.128, 0.156)	0.026 (-0.113, 0.164)	-.012 (-.161, 0.137)	-.028 (-.177, 0.120)	-.025 (-.176, 0.125)	-.048 (-.197, 0.101)
L_LDL_TG	0.056 (-0.088, 0.201)	0.066 (-0.076, 0.208)	0.0087 (-.143, 0.161)	-.0079 (-.159, 0.144)	-.0046 (-.158, 0.149)	-.031 (-.182, 0.120)
M_LDL_TG	0.076 (-0.069, 0.221)	0.082 (-0.060, 0.225)	0.027 (-.126, 0.181)	0.012 (-.141, 0.165)	0.016 (-.138, 0.171)	-.0093 (-.161, 0.143)
S_LDL_TG	0.057 (-0.087, 0.200)	0.066 (-0.075, 0.206)	0.028 (-.122, 0.179)	0.015 (-.136, 0.165)	0.021 (-.131, 0.174)	0.0015 (-.149, 0.153)
LDL_TG	0.062 (-0.083, 0.206)	0.070 (-0.072, 0.212)	0.017 (-.136, 0.169)	0.00043 (-.152, 0.152)	0.0057 (-.148, 0.159)	-.0192 (-.171, 0.132)
XL_HDL_TG	0.197 (0.046, 0.347)	0.208 (0.057, 0.359)	0.150 (-.012, 0.312)	0.145 (-.017, 0.308)	0.139 (-.025, 0.304)	0.121 (-.043, 0.284)
L_HDL_TG	0.136 (-0.0182, 0.289)	0.135 (-0.019, 0.289)	0.097 (-.069, 0.265)	0.082 (-.085, 0.248)	0.080 (-.088, 0.249)	0.066 (-.101, 0.232)
M_HDL_TG	0.057 (-0.092, 0.206)	0.072 (-0.074, 0.218)	0.077 (-.079, 0.234)	0.073 (-.084, 0.231)	0.075 (-.084, 0.234)	0.068 (-.091, 0.227)
S_HDL_TG	0.074 (-0.060, 0.209)	0.088 (-0.042, 0.217)	0.053 (-.086, 0.192)	0.052 (-.088, 0.191)	0.049 (-.092, 0.189)	0.031 (-.109, 0.171)
HDL_TG	0.108 (-0.039, 0.255)	0.120 (-0.025, 0.266)	0.086 (-.070, 0.243)	0.076 (-.080, 0.233)	0.076 (-.083, 0.234)	0.058 (-.099, 0.216)
Serum_TG	0.014 (-0.138, 0.165)	0.029 (-0.117, 0.174)	0.033 (-.123, 0.189)	0.025 (-.132, 0.182)	0.032 (-.127, 0.190)	0.025 (-.133, 0.184)

Table S9. Multivariable regression analyses of pesticide exposure overall with triglycerides subclasses with standardised metabolomic biomarkers in women

Pesticide exposure overall, β (95% CI), Females						
Triglycerides	**Unadjusted**	**+ BMI**	**+ socioeconomic position**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_TG	0.169 (-0.040, 0.378)	0.143 (-0.059, 0.344)	0.135 (-.070, 0.339)	0.131 (-.076, 0.337)	0.143 (-.065, 0.350)	0.146 (-.062, 0.353)
XL_VLDL_TG	-0.007 (-0.236, 0.222)	-0.026 (-0.249, 0.197)	-.044 (-.271, 0.182)	-.062 (-.289, 0.166)	-.056 (-.285, 0.173)	-.043 (-.271, 0.185)
L_VLDL_TG	-0.005 (-0.228, 0.217)	-0.022 (-0.237, 0.193)	-.025 (-.244, 0.193)	-.039 (-.259, 0.181)	0.0063 (-.218, 0.230)	0.021 (-.203, 0.244)
M_VLDL_TG	0.086 (-0.127, 0.298)	0.063 (-0.143, 0.268)	0.049 (-.159, 0.258)	0.041 (-.168, 0.250)	0.082 (-.129, 0.295)	0.098 (-.114, 0.309)
S_VLDL_TG	0.163 (-0.067, 0.393)	0.146 (-0.077, 0.368)	0.119 (-.108, 0.346)	0.099 (-.128, 0.327)	0.124 (-.106, 0.354)	0.126 (-.104, 0.356)
XS_VLDL_TG	0.173 (-0.062, 0.407)	0.164 (-0.064, 0.392)	0.114 (-.117, 0.346)	0.085 (-.147, 0.316)	0.092 (-.143, 0.326)	0.088 (-.146, 0.322)
VLDL_TG	0.122 (-0.092, 0.335)	0.099 (-0.105, 0.305)	0.079 (-.129, 0.287)	0.064 (-.145, 0.273)	0.090 (-.122, 0.302)	0.101 (-.110, 0.313)
IDL_TG	0.212 (-0.024, 0.448)	0.211 (-0.021, 0.444)	0.148 (-.087, 0.383)	0.113 (-.122, 0.349)	0.104 (-.134, 0.343)	0.095 (-.143, 0.333)
L_LDL_TG	0.198 (-0.041, 0.438)	0.200 (-0.037, 0.437)	0.130 (-.109, 0.369)	0.093 (-.146, 0.333)	0.078 (-.164, 0.321)	0.066 (-.176, 0.309)
M_LDL_TG	0.213 (-0.022, 0.448)	0.213 (-0.020, 0.446)	0.156 (-.080, 0.392)	0.122 (-.114, 0.359)	0.109 (-.131, 0.348)	0.096 (-.143, 0.335)
S_LDL_TG	0.199 (-0.036, 0.434)	0.192 (-0.039, 0.424)	0.140 (-.095, 0.375)	0.109 (-.126, 0.344)	0.102 (-.136, 0.340)	0.093 (-.145, 0.330)
LDL_TG	0.204 (-0.034, 0.441)	0.203 (-0.031, 0.438)	0.137 (-.100, 0.375)	0.102 (-.135, 0.339)	0.088 (-.152, 0.329)	0.077 (-.163, 0.317)
XL_HDL_TG	-0.002 (-0.232, 0.228)	0.022 (-0.209, 0.253)	-.041 (-.274, 0.193)	-.073 (-.308, 0.162)	-.107 (-.345, 0.130)	-.112 (-.349, 0.126)
L_HDL_TG	-0.159 (-0.383, 0.066)	-0.133 (-0.357, 0.092)	-.199 (-.428, 0.028)	-.233 (-.461, -.0048)	-.274 (-.506, -.043)	-.278 (-.509, -.047)
M_HDL_TG	0.077 (-0.149, 0.303)	0.064 (-0.159, 0.289)	0.017 (-.210, 0.244)	-.0081 (-.236, 0.220)	-.0277 (-.259, 0.205)	-.021 (-.253, 0.211)
S_HDL_TG	0.229 (-0.012, 0.472)	0.222 (-0.016, 0.459)	0.169 (-.072, 0.410)	0.137 (-.105, 0.379)	0.124 (-.121, 0.370)	0.111 (-.135, 0.356)
HDL_TG	0.018 (-0.219, 0.256)	0.026 (-0.211, 0.264)	-.045 (-.285, 0.195)	-.085 (-.325, 0.156)	-.120 (-.365, 0.124)	-.124 (-.368, 0.121)
Serum_TG	0.142 (-0.069, 0.354)	0.128 (-0.076, 0.332)	0.089 (-.118, 0.296)	0.065 (-.143, 0.272)	0.070 (-.140, 0.280)	0.075 (-.135, 0.286)

Table S10. Multivariable regression analyses of pesticide exposure overall with phospholipid subclasses with standardised metabolomic biomarkers in men

Pesticide exposure overall, β (95% CI), Males						
Phospholipids	**Unadjusted**	**+ BMI**	**+ socioeconomic position**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_PL	0.049 (-0.099, 0.199)	0.064 (-0.081, 0.210)	0.059 (-.096, 0.216)	0.062 (-.095, 0.219)	0.068 (-.091, 0.226)	0.069 (-.090, 0.227)
XL_VLDL_PL	0.049 (-0.105, 0.202)	0.064 (-0.086, 0.214)	0.049 (-.110, 0.210)	0.049 (-.112, 0.211)	0.055 (-.108, 0.218)	0.054 (-.109, 0.217)
L_VLDL_PL	0.0089 (-0.141, 0.159)	0.025 (-0.121, 0.170)	0.046 (-.109, 0.202)	0.041 (-.115, 0.197)	0.051 (-.1060, 0.209)	0.053 (-.105, 0.211)
M_VLDL_PL	0.019 (-0.130, 0.169)	0.037 (-0.108, 0.181)	0.049 (-.105, 0.205)	0.044 (-.111, 0.200)	0.047 (-.111, 0.205)	0.045 (-.113, 0.203)
S_VLDL_PL	-0.014 (-0.154, 0.126)	0.0042 (-0.131, 0.139)	0.013 (-.133, 0.158)	0.0051 (-.141, 0.152)	0.0068 (-.141, 0.155)	-.0033 (-.151, 0.145)
XS_VLDL_PL	-0.0072 (-0.158, 0.144)	0.0092 (-0.141, 0.159)	-.044 (-.205, 0.117)	-.061 (-.222, 0.100)	-.060 (-.223, 0.103)	-.078 (-.239, 0.084)
IDL_PL	0.049 (-0.109, 0.206)	0.062 (-0.095, 0.219)	-.023 (-.192, 0.145)	-.040 (-.208, 0.128)	-.039 (-.209, 0.131)	-.057 (-.226, 0.112)
L_LDL_PL	0.047 (-0.106, 0.201)	0.059 (-0.094, 0.213)	-.023 (-.187, 0.142)	-.040 (-.205, 0.124)	-.034 (-.200, 0.132)	-.051 (-.216, 0.114)
M_LDL_PL	0.052 (-0.103, 0.208)	0.064 (-0.089, 0.218)	-.016 (-.181, 0.149)	-.033 (-.198, 0.132)	-.022 (-.189, 0.144)	-.040 (-.206, 0.125)
S_LDL_PL	0.051 (-0.102, 0.203)	0.059 (-0.093, 0.210)	-.021 (-.183, 0.141)	-.037 (-.199, 0.126)	-.020 (-.184, 0.143)	-.038 (-.200, 0.125)
XL_HDL_PL	0.019 (-0.143, 0.182)	0.0048 (-0.151, 0.161)	-.006 (-.174, 0.162)	-.0025 (-.171, 0.166)	0.000084 (-.169, 0.169)	-.003 (-.173, 0.167)
L_HDL_PL	-0.035 (-0.188, 0.118)	-0.051 (-0.199, 0.098)	-.079 (-.238, 0.082)	-.091 (-.252, 0.069)	-.069 (-.231, 0.092)	-.069 (-.229, 0.091)
M_HDL_PL	-0.089 (-0.237, 0.059)	-0.102 (-0.251, 0.046)	-.107 (-.266, 0.052)	-.126 (-.285, 0.033)	-.090 (-.248, 0.067)	-.085 (-.241, 0.070)
S_HDL_PL	-0.088 (-0.231, 0.056)	-0.098 (-0.243, 0.046)	-.106 (-.260, 0.048)	-.123 (-.278, 0.031)	-.093 (-.246, 0.060)	-.089 (-.241, 0.061)

Table S11. Multivariable regression analyses of pesticide exposure overall with phospholipid subclasses with standardised metabolomic biomarkers in women

Pesticide exposure overall, β (95% CI), Females						
Phospholipids	**Unadjusted**	**+ BMI**	**+ socioeconomic position**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_PL	0.087 (-0.129, 0.303)	0.065 (-0.146, 0.276)	0.063 (-.152, 0.278)	0.053 (-.163, 0.269)	0.055 (-.163, 0.273)	0.065 (-.153, 0.283)
XL_VLDL_PL	0.026 (-0.204, 0.257)	0.0066 (-0.218, 0.232)	-.022 (-.249, 0.205)	-.038 (-.267, 0.192)	-.034 (-.265, 0.198)	-.024 (-.255, 0.208)
L_VLDL_PL	-0.025 (-0.245, 0.196)	-0.040 (-0.253, 0.173)	-.054 (-.271, 0.162)	-.071 (-.289, 0.147)	-.034 (-.256, 0.188)	-.024 (-.246, 0.198)
M_VLDL_PL	0.112 (-0.095, 0.319)	0.090 (-0.109, 0.289)	0.059 (-.143, 0.262)	0.045 (-.158, 0.248)	0.076 (-.129, 0.282)	0.088 (-.118, 0.293)
S_VLDL_PL	0.149 (-0.078, 0.378)	0.134 (-0.087, 0.354)	0.093 (-.131, 0.317)	0.066 (-.159, 0.290)	0.087 (-.141, 0.314)	0.084 (-.143, 0.312)
XS_VLDL_PL	0.164 (-0.063, 0.390)	0.153 (-0.071, 0.377)	0.087 (-.139, 0.314)	0.066 (-.160, 0.293)	0.092 (-.137, 0.321)	0.093 (-.136, 0.322)
IDL_PL	0.119 (-0.107, 0.347)	0.112 (-0.114, 0.339)	0.035 (-.193, 0.264)	0.011 (-.217, 0.239)	0.035 (-.195, 0.265)	0.036 (-.194, 0.266)
L_LDL_PL	0.087 (-0.136, 0.309)	0.078 (-0.144, 0.299)	0.0025 (-.221, 0.226)	-.019 (-.243, 0.204)	0.012 (-.214, 0.237)	0.013 (-.212, 0.239)
M_LDL_PL	0.106 (-0.120, 0.332)	0.097 (-0.127, 0.321)	0.017 (-.209, 0.243)	-.0089 (-.234, 0.216)	0.024 (-.204, 0.252)	0.023 (-.205, 0.251)
S_LDL_PL	0.111 (-0.114, 0.335)	0.106 (-0.117, 0.329)	0.031 (-.194, 0.256)	0.0019 (-.223, 0.227)	0.031 (-.198, 0.259)	0.029 (-.199, 0.258)
XL_HDL_PL	-0.0041 (-0.167, 0.159)	0.025 (-0.134, 0.183)	0.0154 (-.146, 0.177)	-.0016 (-.164, 0.161)	-.027 (-.190, 0.137)	-.037 (-.199, 0.126)
L_HDL_PL	-0.238 (-0.437, -0.039)	-0.207 (-0.401, -0.0125)	-.229 (-.426, -.032)	-.252 (-.451, -.054)	-.289 (-.490, -.089)	-.287 (-.488, -.086)
M_HDL_PL	-0.284 (-0.515, -0.052)	-0.273 (-0.506, -0.041)	-.304 (-.539, -.068)	-.325 (-.562, -.087)	-.356 (-.596, -.116)	-.339 (-.578, -.100)
S_HDL_PL	-0.416 (-0.647, -0.184)	-0.416 (-0.649, -0.183)	-.433 (-.669, -.196)	-.439 (-.678, -.202)	-.468 (-.708, -.227)	-.452 (-.691, -.213)

Table S12. Multivariable regression analyses of pesticide exposure overall with cholesterol esters subclasses with standardised metabolomic biomarkers in men

Pesticide exposure overall, β (95% CI), Males						
Cholesterol esters	**Unadjusted**	**+ BMI**	**+ socioeconomic position**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_CE	0.139 (-0.0042, 0.282)	0.160 (0.020, 0.299)	0.174 (0.025, 0.324)	0.182 (0.031, 0.332)	0.171 (0.019, 0.323)	0.166 (0.014, 0.319)
XL_VLDL_CE	0.049 (-0.098, 0.197)	0.072 (-0.072, 0.216)	0.058 (-.096, 0.212)	0.066 (-.088, 0.220)	0.057 (-.099, 0.213)	0.053 (-.104, 0.209)
L_VLDL_CE	0.017 (-0.132, 0.166)	0.039 (-0.107, 0.185)	0.079 (-.077, 0.236)	0.082 (-.074, 0.238)	0.075 (-.083, 0.232)	0.073 (-.084, 0.231)
M_VLDL_CE	0.069 (-0.083, 0.221)	0.093 (-0.054, 0.240)	0.092 (-.067, 0.249)	0.089 (-.069, 0.249)	0.081 (-.079, 0.242)	0.073 (-.088, 0.234)
S_VLDL_CE	0.038 (-0.104, 0.179)	0.056 (-0.083, 0.195)	0.024 (-.125, 0.173)	0.017 (-.133, 0.167)	0.0079 (-.144, 0.159)	-.0069 (-.158, 0.144)
XS_VLDL_CE	0.041 (-0.109, 0.192)	0.059 (-0.089, 0.209)	-.007 (-.167, 0.152)	-.012 (-.173, 0.148)	-.023 (-.184, 0.139)	-.038 (-.199, 0.122)
IDL_CE	0.058 (-0.093, 0.208)	0.072 (-0.077, 0.222)	-.012 (-.173, 0.148)	-.025 (-.186, 0.136)	-.023 (-.186, 0.139)	-.039 (-.201, 0.122)
L_LDL_CE	0.046 (-0.106, 0.197)	0.058 (-0.092, 0.209)	-.019 (-.181, 0.142)	-.034 (-.196, 0.128)	-.031 (-.194, 0.133)	-.047 (-.209, 0.116)
M_LDL_CE	0.020 (-0.129, 0.170)	0.029 (-0.120, 0.179)	-.038 (-.198, 0.123)	-.0523 (-.213, 0.109)	-.049 (-.212, 0.114)	-.063 (-.225, 0.099)
S_LDL_CE	0.0075 (-0.147, 0.162)	0.015 (-0.139, 0.169)	-.054 (-.220, 0.113)	-.067 (-.234, 0.099)	-.063 (-.232, 0.105)	-.077 (-.245, 0.091)
XL_HDL_CE	0.055 (-0.099, 0.209)	0.046 (-0.107, 0.199)	-.0114 (-.176, 0.153)	0.0052 (-.160, 0.171)	0.012 (-.156, 0.179)	0.00023 (-.167, 0.167)
L_HDL_CE	0.017 (-0.139, 0.173)	0.0017 (-0.149, 0.152)	-.031 (-.194, 0.131)	-.040 (-.203, 0.123)	-.023 (-.187, 0.141)	-.024 (-.188, 0.139)
M_HDL_CE	-0.101 (-0.252, 0.049)	-0.117 (-0.266, 0.033)	-.100 (-.261, 0.060)	-.118 (-.279, 0.043)	-.086 (-.246, 0.074)	-.075 (-.234, 0.083)
S_HDL_CE	-0.069 (-0.236, 0.098)	-0.075 (-0.243, 0.092)	-.130 (-.310, 0.050)	-.149 (-.329, 0.030)	-.133 (-.316, 0.049)	-.147 (-.329, 0.034)
EstC	0.018 (-0.135, 0.171)	0.025 (-0.129, 0.178)	-.045 (-.210, 0.119)	-.061 (-.225, 0.104)	-.048 (-.215, 0.118)	-.064 (-.229, 0.101)

Table S13. Multivariable regression analyses of pesticide exposure overall with cholesterol esters subclasses with standardised metabolomic biomarkers in women

Pesticide exposure overall, β (95% CI), Females						
Cholesterol esters	**Unadjusted**	**Adjusted for BMI**	**+ socioeconomic position**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_CE	0.255 (0.022, 0.488)	0.233 (0.0046, 0.461)	0.212 (-.019, 0.444)	0.205 (-.0291, 0.438)	0.216 (-.019, 0.451)	0.215 (-.0191, 0.449)
XL_VLDL_CE	0.064 (-0.177, 0.304)	0.047 (-0.189, 0.283)	0.024 (-.214, 0.263)	0.012 (-.227, 0.252)	0.023 (-.217, 0.263)	0.023 (-.216, 0.262)
L_VLDL_CE	0.079 (-0.152, 0.312)	0.065 (-0.161, 0.292)	0.050 (-.180, 0.281)	0.040 (-.192, 0.272)	0.084 (-.151, 0.319)	0.079 (-.156, 0.315)
M_VLDL_CE	0.192 (-0.020, 0.404)	0.171 (-0.035, 0.377)	0.127 (-.082, 0.336)	0.113 (-.097, 0.323)	0.139 (-.073, 0.352)	0.147 (-.066, 0.359)
S_VLDL_CE	0.113 (-0.109, 0.334)	0.093 (-0.123, 0.309)	0.036 (-.183, 0.255)	0.015 (-.204, 0.234)	0.058 (-.162, 0.279)	0.054 (-.167, 0.275)
XS_VLDL_CE	0.164 (-0.053, 0.381)	0.149 (-0.065, 0.365)	0.096 (-.122, 0.314)	0.088 (-.131, 0.307)	0.120 (-.099, 0.340)	0.114 (-.106, 0.334)
IDL_CE	0.123 (-0.098, 0.345)	0.112 (-0.108, 0.333)	0.043 (-.179, 0.266)	0.025 (-.197, 0.248)	0.054 (-.171, 0.279)	0.055 (-.169, 0.279)
L_LDL_CE	0.126 (-0.102, 0.354)	0.114 (-0.113, 0.341)	0.044 (-.185, 0.274)	0.024 (-.205, 0.253)	0.071 (-.160, 0.302)	0.072 (-.159, 0.302)
M_LDL_CE	0.126 (-0.101, 0.353)	0.114 (-0.112, 0.341)	0.056 (-.173, 0.285)	0.038 (-.190, 0.267)	0.102 (-.128, 0.332)	0.104 (-.125, 0.334)
S_LDL_CE	0.127 (-0.094, 0.349)	0.117 (-0.104, 0.337)	0.065 (-.159, 0.288)	0.047 (-.176, 0.270)	0.109 (-.115, 0.335)	0.111 (-.114, 0.336)
XL_HDL_CE	0.085 (-0.131, 0.300)	0.108 (-0.107, 0.324)	0.094 (-.125, 0.313)	0.073 (-.148, 0.293)	0.055 (-.169, 0.279)	0.023 (-.197, 0.242)
L_HDL_CE	-0.189 (-0.373, -0.007)	-0.156 (-0.333, 0.020)	-.172 (-.352, 0.0069)	-.194 (-.374, -.013)	-.228 (-.411, -.046)	-.230 (-.413, -.048)
M_HDL_CE	-0.301 (-0.523, -0.079)	-0.296 (-0.518, -0.073)	-.306 (-.532, -.080)	-.306 (-.534, -.079)	-.326 (-.556, -.096)	-.306 (-.534, -.078)
S_HDL_CE	-0.049 (-0.255, 0.156)	-0.055 (-0.262, 0.151)	-.113 (-.321, 0.095)	-.129 (-.336, 0.078)	-.098 (-.309, 0.112)	-.097 (-.307, 0.112)
EstC	0.046 (-0.178, 0.270)	0.045 (-0.179, 0.269)	-.026 (-.253, 0.201)	-.054 (-.281, 0.173)	-.036 (-.266, 0.194)	-.036 (-.267, 0.194)

Table S14. Multivariable regression analyses of pesticide exposure overall with free cholesterol subclasses with standardised metabolomic biomarkers in men

Pesticide exposure overall, β (95% CI), Males						
Free cholesterol	**Unadjusted**	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_FC	0.086 (-0.064, 0.236)	0.101 (-0.045, 0.246)	0.088 (-.068, 0.245)	0.091 (-.066, 0.248)	0.092 (-.067, 0.251)	0.090 (-.069, 0.249)
XL_VLDL_FC	0.067 (-0.085, 0.219)	0.085 (-0.064, 0.233)	0.064 (-.095, 0.222)	0.064 (-.095, 0.224)	0.065 (-.097, 0.227)	0.06 (-.102, 0.222)
L_VLDL_FC	-0.0094 (-0.155, 0.136)	0.0054 (-0.136, 0.147)	0.027 (-.125, 0.179)	0.022 (-.130, 0.175)	0.029 (-.126, 0.183)	0.029 (-.125, 0.184)
M_VLDL_FC	0.018 (-0.128, 0.164)	0.034 (-0.107, 0.175)	0.049 (-.102, 0.202)	0.045 (-.108, 0.197)	0.047 (-.108, 0.202)	0.045 (-.109, 0.199)
S_VLDL_FC	-0.0038 (-0.141, 0.133)	0.013 (-0.119, 0.147)	0.012 (-.132, 0.155)	0.002 (-.142, 0.146)	0.0036 (-.142, 0.149)	-.0079 (-.153, 0.137)
XS_VLDL_FC	-0.018 (-0.169, 0.133)	-0.0016 (-0.152, 0.148)	-.051 (-.212, 0.111)	-.066 (-.227, 0.095)	-.069 (-.232, 0.095)	-.087 (-.249, 0.076)
IDL_FC	0.033 (-0.126, 0.193)	0.045 (-0.115, 0.205)	-.037 (-.209, 0.134)	-.053 (-.225, 0.118)	-.054 (-.227, 0.119)	-.071 (-.243, 0.101)
L_LDL_FC	0.053 (-0.103, 0.209)	0.064 (-0.093, 0.221)	-.027 (-.195, 0.141)	-.043 (-.211, 0.125)	-.041 (-.210, 0.129)	-.059 (-.227, 0.109)
M_LDL_FC	0.055 (-0.095, 0.205)	0.064 (-0.086, 0.215)	-.024 (-.185, 0.137)	-.040 (-.201, 0.121)	-.032 (-.195, 0.129)	-.052 (-.213, 0.109)
S_LDL_FC	0.058 (-0.095, 0.211)	0.068 (-0.086, 0.221)	-.022 (-.186, 0.142)	-.037 (-.201, 0.127)	-.027 (-.192, 0.139)	-.047 (-.212, 0.117)
XL_HDL_FC	0.071 (-0.092, 0.235)	0.062 (-0.097, 0.221)	0.0099 (-.161, 0.181)	0.018 (-.154, 0.189)	0.024 (-.150, 0.198)	0.023 (-.151, 0.197)
L_HDL_FC	-0.014 (-0.178, 0.149)	-0.029 (-0.186, 0.128)	-.059 (-.227, 0.110)	-.067 (-.236, 0.103)	-.049 (-.221, 0.122)	-.052 (-.223, 0.119)
M_HDL_FC	-0.109 (-0.264, 0.046)	-0.123 (-0.277, 0.032)	-.124 (-.289, 0.041)	-.144 (-.309, 0.021)	-.112 (-.278, 0.053)	-.107 (-.271, 0.056)
S_HDL_FC	-0.073 (-0.227, 0.080)	-0.083 (-0.237, 0.072)	-.117 (-.283, 0.048)	-.139 (-.3043, 0.026)	-.111 (-.276, 0.053)	-.118 (-.281, 0.045)
Free cholesterol	0.021 (-0.134, 0.176)	0.029 (-0.127, 0.185)	-.054 (-.221, 0.113)	-.073 (-.240, 0.094)	-.065 (-.234, 0.104)	-.081 (-.249, 0.086)

Table S15. Multivariable regression analyses of pesticide exposure overall with free cholesterol subclasses with standardised metabolomic biomarkers in women

Pesticide exposure overall, β (95% CI), Females						
Free cholesterol	**Unadjusted**	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_FC	0.112 (-0.108, 0.332)	0.093 (-0.122, 0.307)	0.075 (-.143, 0.292)	0.062 (-.157, 0.281)	0.059 (-.162, 0.281)	0.068 (-.153, 0.289)
XL_VLDL_FC	0.028 (-0.201, 0.256)	0.0099 (-0.214, 0.233)	-.023 (-.246, 0.201)	-.036 (-.262, 0.189)	-.031 (-.258, 0.197)	-.0254 (-.253, 0.202)
L_VLDL_FC	-0.035 (-0.266, 0.197)	-0.048 (-0.273, 0.177)	-.063 (-.291, 0.166)	-.082 (-.312, 0.148)	-.054 (-.288, 0.180)	-.044 (-.277, 0.190)
M_VLDL_FC	0.105 (-0.109, 0.319)	0.085 (-0.121, 0.291)	0.053 (-.156, 0.262)	0.035 (-.175, 0.245)	0.057 (-.156, 0.269)	0.069 (-.143, 0.282)
S_VLDL_FC	0.111 (-0.115, 0.337)	0.096 (-0.122, 0.315)	0.048 (-.174, 0.269)	0.0193 (-.202, 0.242)	0.043 (-.181, 0.268)	0.042 (-.183, 0.266)
XS_VLDL_FC	0.135 (-0.087, 0.357)	0.126 (-0.093, 0.346)	0.066 (-.156, 0.289)	0.046 (-.177, 0.269)	0.074 (-.152, 0.299)	0.072 (-.154, 0.297)
IDL_FC	0.126 (-0.098, 0.349)	0.120 (-0.103, 0.344)	0.049 (-.176, 0.276)	0.027 (-.198, 0.253)	0.053 (-.175, 0.280)	0.054 (-.174, 0.281)
L_LDL_FC	0.122 (-0.099, 0.344)	0.116 (-0.105, 0.337)	0.042 (-.181, 0.266)	0.019 (-.204, 0.242)	0.052 (-.174, 0.277)	0.050 (-.175, 0.275)
M_LDL_FC	0.125 (-0.095, 0.345)	0.119 (-0.100, 0.338)	0.041 (-.179, 0.262)	0.017 (-.204, 0.237)	0.053 (-.169, 0.276)	0.048 (-.174, 0.271)
S_LDL_FC	0.142 (-0.083, 0.367)	0.136 (-0.087, 0.359)	0.059 (-.166, 0.285)	0.035 (-.191, 0.260)	0.074 (-.155, 0.302)	0.066 (-.162, 0.294)
XL_HDL_FC	0.092 (-0.103, 0.288)	0.119 (-0.074, 0.313)	0.107 (-.090, 0.303)	0.087 (-.111, 0.285)	0.067 (-.133, 0.268)	0.053 (-.146, 0.251)
L_HDL_FC	-0.150 (-0.326, 0.026)	-0.117 (-0.287, 0.052)	-.129 (-.301, 0.043)	-.148 (-.321, 0.026)	-.177 (-.352, -.002)	-.179 (-.354, -.004)
M_HDL_FC	-0.260 (-0.479, -0.041)	-0.249 (-0.469, -0.030)	-.279 (-.502, -.056)	-.297 (-.521, -.072)	-.322 (-.548, -.095)	-.305 (-.531, -.079)
S_HDL_FC	-0.399 (-0.641, -0.158)	-0.393 (-0.637, -0.149)	-.438 (-.685, -.191)	-.465 (-.713, -.218)	-.491 (-.742, -.240)	-.484 (-.733, -.234)
Free cholesterol	0.059 (-0.172, 0.291)	0.059 (-0.172, 0.290)	-.018 (-.251, 0.216)	-.045 (-.279, 0.188)	-.033 (-.270, 0.203)	-.031 (-.268, 0.206)

Table S16. Multivariable regression analyses of pesticide exposure overall with total lipid subclasses with standardised metabolomic biomarkers in men

Pesticide exposure overall, β (95% CI), Males						
Total lipids	**Unadjusted**	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_L	0.088 (-0.067, 0.244)	0.107 (-0.044, 0.257)	0.096 (-.065, 0.257)	0.102 (-.059, 0.264)	0.103 (-.061, 0.267)	0.102 (-.062, 0.266)
XL_VLDL_L	0.017 (-0.138, 0.172)	0.033 (-0.118, 0.184)	0.019 (-.142, 0.182)	0.019 (-.143, 0.182)	0.025 (-.139, 0.189)	0.025 (-.139, 0.190)
L_VLDL_L	-0.019 (-0.169, 0.131)	-0.0034 (-0.149, 0.142)	0.020 (-.135, 0.176)	0.016 (-.140, 0.172)	0.026 (-.132, 0.183)	0.0286 (-.129, 0.186)
M_VLDL_L	0.014 (-0.134, 0.162)	0.030 (-0.112, 0.173)	0.049 (-.104, 0.202)	0.045 (-.109, 0.198)	0.047 (-.108, 0.203)	0.047 (-.109, 0.203)
S_VLDL_L	0.0017 (-0.136, 0.139)	0.019 (-0.114, 0.153)	0.023 (-.119, 0.167)	0.016 (-.128, 0.160)	0.015 (-.130, 0.161)	0.0057 (-.140, 0.151)
XS_VLDL_L	0.0062 (-0.139, 0.151)	0.025 (-0.118, 0.167)	-.023 (-.176, 0.130)	-.036 (-.189, 0.118)	-.039 (-.194, 0.117)	-.056 (-.210, 0.098)
IDL_L	0.051 (-0.099, 0.203)	0.065 (-0.085, 0.216)	-.016 (-.177, 0.146)	-.031 (-.192, 0.131)	-.029 (-.192, 0.134)	-.047 (-.209, 0.115)
L_LDL_L	0.049 (-0.103, 0.202)	0.062 (-0.089, 0.214)	-.019 (-.181, 0.144)	-.035 (-.197, 0.128)	-.031 (-.195, 0.134)	-.049 (-.212, 0.114)
M_LDL_L	0.037 (-0.115, 0.189)	0.048 (-0.104, 0.199)	-.027 (-.189, 0.136)	-.043 (-.206, 0.119)	-.037 (-.201, 0.127)	-.055 (-.218, 0.108)
S_LDL_L	0.030 (-0.119, 0.179)	0.039 (-0.109, 0.188)	-.033 (-.192, 0.127)	-.048 (-.208, 0.111)	-.039 (-.199, 0.122)	-.055 (-.215, 0.105)
XL_HDL_L	0.048 (-0.104, 0.199)	0.037 (-0.112, 0.185)	-.0089 (-.169, 0.151)	-.00056 (-.161, 0.159)	0.0064 (-.156, 0.169)	-.00049 (-.163, 0.162)
L_HDL_L	-0.0051 (-0.157, 0.147)	-0.020 (-0.168, 0.127)	-.053 (-.212, 0.105)	-.065 (-.224, 0.094)	-.046 (-.206, 0.115)	-.047 (-.207, 0.113)
M_HDL_L	-0.095 (-0.243, 0.052)	-0.109 (-0.256, 0.039)	-.105 (-.263, 0.053)	-.124 (-.282, 0.035)	-.091 (-.248, 0.067)	-.084 (-.239, 0.071)
S_HDL_L	-0.073 (-0.226, 0.080)	-0.081 (-0.235, 0.073)	-.118 (-.283, 0.046)	-.141 (-.305, 0.023)	-.111 (-.274, 0.053)	-.119 (-.280, 0.043)

Table S17. Multivariable regression analyses of pesticide exposure overall with total lipid subclasses with standardised metabolomic biomarkers in women

Pesticide exposure overall, β (95% CI), Females						
Total lipids	**Unadjusted**	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_L	0.163 (-0.047, 0.372)	0.138 (-0.064, 0.339)	0.127 (-.078, 0.332)	0.120 (-.086, 0.326)	0.130 (-.078, 0.338)	0.133 (-.074, 0.341)
XL_VLDL_L	0.019 (-0.204, 0.242)	0.00075 (-0.216, 0.217)	-.0213 (-.241, 0.198)	-.037 (-.258, 0.184)	-.029 (-.251, 0.194)	-.018 (-.240, 0.204)
L_VLDL_L	0.010 (-0.208, 0.228)	-0.005 (-0.215, 0.205)	-.013 (-.226, 0.201)	-.027 (-.242, 0.188)	0.018 (-.201, 0.236)	0.028 (-.190, 0.246)
M_VLDL_L	0.108 (-0.097, 0.313)	0.085 (-0.111, 0.282)	0.060 (-.139, 0.259)	0.049 (-.152, 0.249)	0.082 (-.121, 0.285)	0.095 (-.108, 0.298)
S_VLDL_L	0.131 (-0.086, 0.349)	0.113 (-0.096, 0.322)	0.071 (-.141, 0.283)	0.047 (-.166, 0.259)	0.077 (-.138, 0.292)	0.077 (-.138, 0.292)
XS_VLDL_L	0.167 (-0.054, 0.388)	0.155 (-0.062, 0.371)	0.092 (-.127, 0.311)	0.071 (-.149, 0.291)	0.098 (-.124, 0.319)	0.094 (-.127, 0.316)
IDL_L	0.134 (-0.087, 0.355)	0.126 (-0.094, 0.345)	0.053 (-.169, 0.275)	0.029 (-.193, 0.251)	0.052 (-.172, 0.276)	0.052 (-.172, 0.276)
L_LDL_L	0.127 (-0.098, 0.352)	0.118 (-0.106, 0.342)	0.044 (-.182, 0.269)	0.020 (-.206, 0.246)	0.054 (-.173, 0.282)	0.054 (-.174, 0.282)
M_LDL_L	0.136 (-0.093, 0.365)	0.125 (-0.102, 0.353)	0.055 (-.175, 0.284)	0.031 (-.198, 0.259)	0.075 (-.157, 0.306)	0.074 (-.157, 0.305)
S_LDL_L	0.139 (-0.085, 0.363)	0.129 (-0.093, 0.352)	0.064 (-.161, 0.288)	0.039 (-.185, 0.264)	0.083 (-.144, 0.309)	0.081 (-.146, 0.308)
XL_HDL_L	0.027 (-0.173, 0.227)	0.059 (-0.137, 0.256)	0.044 (-.156, 0.243)	0.020 (-.180, 0.221)	-.0077 (-.211, 0.195)	-.027 (-.228, 0.174)
L_HDL_L	-0.216 (-0.413, -0.0197)	-0.182 (-0.373, 0.0083)	-.206 (-.399, -.0119)	-.229 (-.425, -.034)	-.267 (-.465, -.070)	-.267 (-.465, -.070)
M_HDL_L	-0.287 (-0.512, -0.062)	-0.279 (-0.505, -0.054)	-.306 (-.535, -.076)	-.319 (-.550, -.089)	-.346 (-.579, -.113)	-.327 (-.559, -.096)
S_HDL_L	-0.257 (-0.497, -0.016)	-0.259 (-0.500, -0.017)	-.314 (-.559, -.069)	-.334 (-.578, -.089)	-.341 (-.589, -.093)	-.332 (-.579, -.086)

Table S18. Multivariable regression analyses of pesticide exposure overall with total cholesterol subclasses with standardised metabolomic biomarkers in men

Pesticide exposure overall, β (95% CI), Males						
Total cholesterol	**Unadjusted**	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_C	0.118 (-0.031, 0.267)	0.138 (-0.0069, 0.283)	0.136 (-.019, 0.291)	0.142 (-.014, 0.298)	0.135 (-.023, 0.293)	0.131 (-.027, 0.289)
XL_VLDL_C	0.059 (-0.093, 0.211)	0.079 (-0.069, 0.227)	0.061 (-.097, 0.219)	0.065 (-.094, 0.224)	0.061 (-.100, 0.222)	0.056 (-.105, 0.218)
L_VLDL_C	0.0032 (-0.146, 0.152)	0.023 (-0.122, 0.169)	0.059 (-.096, 0.215)	0.058 (-.098, 0.214)	0.058 (-.100, 0.216)	0.056 (-.102, 0.214)
M_VLDL_C	0.048 (-0.102, 0.197)	0.069 (-0.076, 0.213)	0.075 (-.080, 0.231)	0.072 (-.084, 0.228)	0.068 (-.089, 0.226)	0.063 (-.095, 0.221)
S_VLDL_C	0.023 (-0.116, 0.162)	0.041 (-0.094, 0.177)	0.020 (-.125, 0.166)	0.012 (-.134, 0.158)	0.0068 (-.141, 0.155)	-.007 (-.155, 0.141)
XS_VLDL_C	0.022 (-0.131, 0.175)	0.041 (-0.111, 0.192)	-.023 (-.185, 0.139)	-.032 (-.195, 0.131)	-.041 (-.205, 0.124)	-.057 (-.221, 0.106)
IDL_C	0.051 (-0.103, 0.205)	0.065 (-0.088, 0.218)	-.020 (-.184, 0.144)	-.034 (-.199, 0.130)	-.033 (-.199, 0.133)	-.049 (-.214, 0.115)
L_LDL_C	0.048 (-0.105, 0.201)	0.060 (-0.092, 0.213)	-.021 (-.185, 0.143)	-.036 (-.200, 0.127)	-.033 (-.199, 0.132)	-.049 (-.214, 0.115)
M_LDL_C	0.026 (-0.123, 0.175)	0.036 (-0.113, 0.185)	-.036 (-.196, 0.124)	-.051 (-.212, 0.109)	-.047 (-.209, 0.115)	-.063 (-.223, 0.098)
S_LDL_C	0.017 (-0.133, 0.166)	0.025 (-0.124, 0.174)	-.047 (-.208, 0.113)	-.062 (-.222, 0.099)	-.055 (-.218, 0.107)	-.070 (-.232, 0.091)
LDL_C	0.034 (-0.115, 0.184)	0.045 (-0.104, 0.194)	-.031 (-.191, 0.129)	-.046 (-.206, 0.114)	-.042 (-.203, 0.119)	-.058 (-.218, 0.103)
XL_HDL_C	0.058 (-0.097, 0.213)	0.049 (-0.104, 0.202)	-.0091 (-.174, 0.155)	0.0049 (-.160, 0.170)	0.012 (-.155, 0.179)	0.003 (-.164, 0.169)
L_HDL_C	0.013 (-0.144, 0.170)	-0.0024 (-0.154, 0.149)	-.035 (-.198, 0.129)	-.043 (-.207, 0.121)	-.026 (-.191, 0.139)	-.027 (-.193, 0.138)
M_HDL_C	-0.105 (-0.256, 0.046)	-0.120 (-0.270, 0.029)	-.107 (-.268, 0.053)	-.125 (-.286, 0.036)	-.093 (-.253, 0.068)	-.083 (-.242, 0.075)
S_HDL_C	-0.062 (-0.221, 0.097)	-0.069 (-0.229, 0.091)	-.121 (-.293, 0.051)	-.143 (-.314, 0.028)	-.121 (-.294, 0.051)	-.134 (-.306, 0.037)
HDL_C_	-0.031 (-0.176, 0.113)	-0.049 (-0.191, 0.091)	-.082 (-.233, 0.069)	-.096 (-.247, 0.056)	-.070 (-.2221, 0.082)	-.073 (-.225, 0.078)
Serum C	0.032 (-0.125, 0.189)	0.039 (-0.118, 0.197)	-.034 (-.203, 0.135)	-.052 (-.220, 0.117)	-.039 (-.210, 0.130)	-.056 (-.226, 0.113)
Remnant C	0.048 (-0.101, 0.196)	0.067 (-0.078, 0.212)	0.017 (-.138, 0.173)	0.0069 (-.149, 0.163)	0.0053 (-.153, 0.163)	-.0091 (-.166, 0.148)

Table S19. Multivariable regression analyses of pesticide exposure overall with total cholesterol subclasses with standardised metabolomic biomarkers in women

Pesticide exposure overall, β (95% CI), Females						
Total cholesterol	**Unadjusted**	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_C	0.196 (-0.026, 0.419)	0.175 (-0.041, 0.391)	0.154 (-.065, 0.374)	0.144 (-.077, 0.365)	0.151 (-.072, 0.373)	0.153 (-.069, 0.375)
XL_VLDL_C	0.047 (-0.180, 0.275)	0.030 (-0.191, 0.252)	0.0029 (-.219, 0.226)	-.010 (-.234, 0.214)	-.00069 (-.226, 0.225)	0.0021 (-.223, 0.228)
L_VLDL_C	0.011 (-0.214, 0.235)	-0.0035 (-0.221, 0.214)	-.019 (-.241, 0.201)	-.035 (-.257, 0.188)	0.0086 (-.217, 0.234)	0.011 (-.215, 0.237)
M_VLDL_C	0.156 (-0.052, 0.365)	0.136 (-0.066, 0.337)	0.096 (-.108, 0.301)	0.080 (-.125, 0.286)	0.106 (-.102, 0.315)	0.115 (-.093, 0.323)
S_VLDL_C	0.111 (-0.108, 0.331)	0.093 (-0.119, 0.306)	0.039 (-.177, 0.254)	0.015 (-.201, 0.231)	0.052 (-.166, 0.269)	0.048 (-.169, 0.266)
XS_VLDL_C	0.159 (-0.063, 0.382)	0.147 (-0.073, 0.366)	0.088 (-.135, 0.311)	0.075 (-.149, 0.299)	0.107 (-.118, 0.332)	0.102 (-.123, 0.328)
IDL_C	0.126 (-0.099, 0.352)	0.117 (-0.108, 0.341)	0.046 (-.181, 0.273)	0.026 (-.201, 0.253)	0.055 (-.174, 0.284)	0.056 (-.173, 0.285)
L_LDL_C	0.125 (-0.102, 0.353)	0.114 (-0.112, 0.341)	0.043 (-.185, 0.272)	0.022 (-.206, 0.251)	0.065 (-.165, 0.296)	0.066 (-.165, 0.296)
M_LDL_C	0.129 (-0.099, 0.357)	0.118 (-0.109, 0.344)	0.054 (-.175, 0.283)	0.034 (-.194, 0.263)	0.089 (-.142, 0.319)	0.089 (-.141, 0.319)
S_LDL_C	0.135 (-0.089, 0.359)	0.124 (-0.099, 0.347)	0.065 (-.160, 0.291)	0.046 (-.179, 0.271)	0.101 (-.126, 0.328)	0.100 (-.127, 0.327)
LDL_C	0.127 (-0.097, 0.351)	0.116 (-0.107, 0.339)	0.050 (-.175, 0.276)	0.0307 (-.195, 0.256)	0.078 (-.149, 0.305)	0.078 (-.149, 0.305)
XL_HDL_C	0.085 (-0.123, 0.293)	0.111 (-0.097, 0.318)	0.096 (-.115, 0.307)	0.074 (-.138, 0.286)	0.055 (-.160, 0.269)	0.027 (-.184, 0.238)
L_HDL_C	-0.184 (-0.367, 0.00031)	-0.149 (-0.327, 0.028)	-.165 (-.345, 0.015)	-.186 (-.368, -.0047)	-.220 (-.404, -.037)	-.222 (-.406, -.039)
M_HDL_C	-0.295 (-0.514, -.075)	-0.288 (-0.508, -0.068)	-.303 (-.526, -.079)	-.308 (-.532, -.083)	-.329 (-.555, -.101)	-.309 (-.535, -.084)
S_HDL_C	-0.116 (-0.336, 0.103)	-0.119 (-0.340, 0.100)	-.183 (-.405, 0.039)	-.203 (-.424, 0.019)	-.183 (-.408, 0.042)	-.181 (-.405, 0.043)
HDL_C_	-0.213 (-0.421, -.0045)	-0.184 (-0.389, 0.020)	-.216 (-.424, -.0085)	-.244 (-.453, -.035)	-.274 (-.486, -.062)	-.273 (-.485, -.061)
Serum C	0.051 (-0.180, 0.283)	0.050 (-0.181, 0.282)	-.025 (-.259, 0.209)	-.054 (-.288, 0.180)	-.036 (-.274, 0.201)	-.036 (-.273, 0.202)
Remnant C	0.147 (-0.069, 0.364)	0.131 (-0.081, 0.343)	0.068 (-.146, 0.283)	0.049 (-.166, 0.264)	0.082 (-.135, 0.299)	0.083 (-.134, 0.300)

Table S20. Multivariable regression analyses of pesticide exposure overall with apolipoproteins, aminoacids, sphingomyelins, glucose metabolism, fatty acids, inflammation, and fluid balance with standardised metabolomic biomarkers in men

Pesticide exposure overall, β (95% CI), Males						
	Unadjusted	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
Apolipoproteins						
Apolipoprotein A1 [g/L]	-0.035 (-0.177, 0.107)	-0.046 (-0.188, 0.095)	-.076 (-.228, 0.076)	-.095 (-.247, 0.057)	-.069 (-.221, 0.083)	-.074 (-.225, 0.077)
Apolipoprotein B [g/L]	0.033 (-0.116, 0.182)	0.051 (-0.095, 0.197)	0.0023 (-.154, 0.159)	-.011 (-.168, 0.146)	-.0069 (-.166, 0.152)	-.020 (-.178, 0.138)
Ratio of Apo B/Apo A1	0.054 (-0.087, 0.195)	0.079 (-0.054, 0.213)	0.052 (-.092, 0.195)	0.052 (-.092, 0.197)	0.038 (-.107, 0.184)	0.029 (-.117, 0.174)
Amino acids						
Alanine [µmol/L]	-0.143 (-0.296, 0.011)	-0.137 (-0.290, 0.015)	-.042 (-.205, 0.122)	-.064 (-.228, 0.099)	-.061 (-.227, 0.104)	-.075 (-.239, 0.089)
Glutamine [µmol/L]	-0.058 (-0.219, 0.102)	-0.061 (-0.221, 0.099)	-.145 (-.317, 0.027)	-.100 (-.270, 0.069)	-.092 (-.262, 0.079)	-.087 (-.258, 0.083)
Glycine [µmol/L]	-0.059 (-0.191, 0.073)	-0.054 (-0.187, 0.078)	-.057 (-.198, 0.085)	-.081 (-.222, 0.059)	-.109 (-.251, 0.032)	-.135 (-.274, 0.0038)
Histidine [µmol/L]	0.099 (-0.068, 0.268)	0.098 (-0.071, 0.266)	0.133 (-.048, 0.314)	0.164 (-.0180, 0.345)	0.154 (-.029, 0.336)	0.162 (-.020, 0.345)
Branched-chain amino acids						
Isoleucine [µmol/L]	-0.148 (-0.289, -0.006)	-0.137 (-0.275, 0.0018)	-.107 (-.255, 0.041)	-.122 (-.271, 0.027)	-.119 (-.269, 0.032)	-.127 (-.277, 0.023)
Leucine [µmol/L]	-0.120 (-0.259, 0.019)	-0.123 (-0.259, 0.013)	-.086 (-.232, 0.060)	-.106 (-.252, 0.040)	-.100 (-.249, 0.048)	-.115 (-.262, 0.033)
Valine [µmol/L]	-0.173 (-0.308, -0.038)	-0.177 (-0.311, -0.043)	-.144 (-.287, -.00032)	-.159 (-.303, -.0154)	-.158 (-.303, -.0127)	-.170 (-.315, -.026)
Aromatic amino acids						
Phenylalanine [µmol/L]	0.081 (-0.065, 0.227)	0.085 (-0.057, 0.226)	0.043 (-.109, 0.195)	0.021 (-.1301, 0.172)	0.0034 (-.149, 0.155)	-.029 (-.177, 0.119)
Tyrosine [µmol/L]	-0.165 (-0.314, -0.017)	-0.151 (-0.297, -0.004)	-.132 (-.289, 0.026)	-.094 (-.251, 0.063)	-.091 (-.250, 0.068)	-.094 (-.253, 0.065)
Ketone bodies						
Acetoacetate [µmol/L]	-0.048 (-0.198, 0.103)	-0.064 (-0.215, 0.087)	-.128 (-.289, 0.034)	-.133 (-.295, 0.029)	-.114 (-.278, 0.049)	-.115 (-.279, 0.048)
Acetate [µmol/L]	0.145 (-0.010, 0.300)	0.154 (-0.001, 0.309)	0.232 (0.065, 0.398)	0.217 (0.051, 0.384)	0.231 (0.062, 0.399)	0.222 (0.053, 0.391)
beta-hydroxybutyrate [µmol/L]	0.0063 (-0.139, 0.152)	-0.014 (-0.161, 0.132)	-.087 (-.243, 0.069)	-.096 (-.252, 0.061)	-.082 (-.239, 0.074)	-.097 (-.252, 0.059)

Sphingolipids						
Sphingomyelin	-0.016 (-.173, 0.141)	-0.017 (-0.175, 0.141)	-.089 (-.259, 0.079)	-.111 (-.279, 0.059)	-.097 (-.268, 0.073)	-.112 (-.281, 0.057)
Total choline	-0.017 (-0.163, 0.129)	-0.016 (-0.163, 0.131)	-.067 (-.224, 0.091)	-.083 (-.239, 0.075)	-.061 (-.219, 0.097)	-.072 (-.229, 0.085)
Glycolysis related metabolites						
Citrate [µmol/L]	0.089 (-0.068, 0.247)	0.081 (-0.077, 0.239)	0.056 (-.114, 0.226)	0.039 (-.131, 0.208)	0.047 (-.124, 0.218)	0.033 (-.137, 0.203)
Glucose [mmol/L]	-0.021 (-0.174, 0.132)	-0.019 (-0.173, 0.135)	-.070 (-.235, 0.095)	-.096 (-.260, 0.068)	-.083 (-.248, 0.082)	-.090 (-.255, 0.074)
Glycerol [mmol/L]	-0.022 (-0.184, 0.139)	-0.018 (-0.181, 0.144)	-.0079 (-.183, 0.167)	0.021 (-.154, 0.196)	0.014 (-.163, 0.191)	0.026 (-.150, 0.202)
Lactate [mmol/L]	-0.229 (-0.383, -0.077)	-0.228 (-0.381, -0.075)	-.159 (-.323, 0.0056)	-.169 (-.335, -.0049)	-.164 (-.330, 0.0019)	-.189 (-.352, -.026)
Pyruvate [mmol/L]	0.097 (-0.058, 0.253)	0.102 (-0.055, 0.258)	0.062 (-.1049, 0.229)	0.081 (-.087, 0.248)	0.068 (-.101, 0.238)	0.070 (-.099, 0.239)
Fatty acids						
Total fatty acids [mmol/L]	-0.035 (-0.187, 0.117)	-0.028 (-0.179, 0.123)	-.054 (-.215, 0.108)	-.068 (-.229, 0.094)	-.049 (-.212, 0.114)	-.059 (-.222, 0.102)
Monounsaturated fatty acids [mmol/L]	-0.059 (-0.208, 0.091)	-0.052 (-0.199, 0.095)	-.056 (-.214, 0.102)	-.067 (-.226, 0.091)	-.049 (-.207, 0.110)	-.056 (-.215, 0.102)
Saturated fatty acids [mmol/L]	0.054 (-0.097, 0.204)	0.061 (-0.088, 0.209)	-.0011 (-.1601, 0.159)	-.015 (-.175, 0.145)	0.0038 (-.157, 0.165)	-.0095 (-.169, 0.151)
Inflammation						
Alpha-1-acid glycoprotein [mmol/L]	-0.105 (-0.263, 0.052)	-0.105 (-.259, 0.049)	-.105 (-.271, 0.061)	-.132 (-.298, 0.034)	-.138 (-.306, 0.029)	-.149 (-.315, 0.018)
Fluid balance						
Creatinine [µmol/L]	-0.039 (-0.241, 0.162)	-0.041 (-0.243, 0.161)	0.031 (-.186, 0.248)	0.069 (-.147, 0.286)	0.069 (-.149, 0.289)	0.077 (-.143, 0.297)
Albumin [standardized concentration units]	-0.059 (-0.229, 0.112)	-0.061 (-0.233, 0.110)	-.103 (-.288, 0.081)	-.129 (-.313, 0.055)	-.121 (-.307, 0.065)	-.131 (-.316, 0.054)

Table S21. Multivariable regression analyses of pesticide exposure overall with apolipoproteins, aminoacids, sphingomyelins, glucose metabolism, fatty acids, inflammation, and fluid balance with standardised metabolomic biomarkers in women

Pesticide exposure overall, β (95% CI), Females						
	Unadjusted	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
Apolipoproteins						
Apolipoprotein A1 [g/L]	-0.223 (-0.452, 0.0068)	-0.201 (-0.429, 0.028)	-.250 (-.482, -.018)	-.283 (-.516, -.049)	-.308 (-.545, -.071)	-.303 (-.539, -.066)
Apolipoprotein B [g/L]	0.143 (-0.072, 0.357)	0.127 (-0.082, 0.337)	0.063 (-.149, 0.275)	0.042 (-.170, 0.254)	0.079 (-.135, 0.293)	0.082 (-.133, 0.296)
Ratio of Apo B/Apo A1	0.286 (0.079, 0.492)	0.256 (0.058, 0.453)	0.227 (0.027, 0.428)	0.229 (0.027, 0.430)	0.282 (0.079, 0.484)	0.281 (0.079, 0.483)
Amino acids						
Alanine [µmol/L]	0.088 (-0.134, 0.311)	0.098 (-0.124, 0.319)	0.109 (-.115, 0.334)	0.091 (-.135, 0.316)	0.089 (-.140, 0.318)	0.087 (-.141, 0.316)
Glutamine [µmol/L]	-0.226 (-0.444, -0.008)	-0.209 (-0.428, 0.010)	-.237 (-.459, -.0145)	-.231 (-.454, -.0078)	-.224 (-.451, 0.0023)	-.205 (-.428, 0.019)
Glycine [µmol/L]	-0.167 (-0.428, 0.094)	-0.168 (-0.431, 0.094)	-.245 (-.511, 0.020)	-.240 (-.506, 0.026)	-.212 (-.483, 0.059)	-.219 (-.4881, 0.049)
Histidine [µmol/L]	-0.075 (-0.296, 0.147)	-0.072 (-0.294, 0.149)	-.026 (-.251, 0.198)	-.031 (-.257, 0.196)	-.051 (-.282, 0.179)	-.048 (-.278, 0.182)
Branched-chain amino acids						
Isoleucine [µmol/L]	-0.048 (-0.249, 0.153)	-0.064 (-0.259, 0.132)	-.071 (-.269, 0.128)	-.060 (-.260, 0.139)	-.032 (-.235, 0.172)	-.021 (-.223, 0.181)
Leucine [µmol/L]	-0.039 (-0.241, 0.164)	-0.061 (-0.259, 0.137)	-.067 (-.268, 0.134)	-.067 (-.268, 0.134)	-.059 (-.263, 0.146)	-.059 (-.263, 0.144)
Valine [µmol/L]	-0.075 (-0.287, 0.136)	-0.095 (-0.304, 0.113)	-.094 (-.306, 0.117)	-.083 (-.294, 0.129)	-.069 (-.284, 0.146)	-.061 (-.275, 0.152)
Aromatic amino acids						
Phenylalanine [µmol/L]	0.224 (-0.002, 0.451)	0.204 (-0.017, 0.426)	0.155 (-.069, 0.379)	0.137 (-.087, 0.360)	0.113 (-.113, 0.339)	0.102 (-.122, 0.325)
Tyrosine [µmol/L]	-0.034 (-0.251, 0.182)	-0.056 (-0.271, 0.159)	-.055 (-.273, 0.164)	-.055 (-.275, 0.165)	-.055 (-.278, 0.168)	-.035 (-.256, 0.185)
Ketone bodies						
Acetoacetate [µmol/L]	-0.196 (-0.428, 0.037)	-0.190 (-0.424, 0.044)	-.235 (-.473, 0.0029)	-.252 (-.491, -.012)	-.264 (-.506, -.022)	-.257 (-.498, -.015)
Acetate [µmol/L]	-0.083 (-0.303, 0.137)	-0.087 (-0.309, 0.135)	-.098 (-.322, 0.126)	-.107 (-.332, 0.118)	-.119 (-.347, 0.108)	-.118 (-.345, 0.109)
beta-hydroxybutyrate [µmol/L]	-0.172 (-0.417, 0.073)	-0.152 (-0.398, 0.094)	-.210 (-.458, 0.038)	-.235 (-.485, 0.015)	-.229 (-.482, 0.023)	-.238 (-.490, 0.014)

Sphingolipids						
Sphingomyelin	-0.065 (-0.299, 0.169)	-0.059 (-0.294, 0.176)	-.137 (-.374, 0.100)	-.173 (-.409, 0.064)	-.171 (-.413, 0.070)	-.168 (-.409, 0.074)
Total choline	-0.062 (-0.294, 0.171)	-0.053 (-0.287, 0.180)	-.120 (-.357, 0.116)	-.155 (-.392, 0.082)	-.166 (-.407, 0.075)	-.161 (-.402, 0.079)
Glycolysis related metabolites						
Citrate [µmol/L]	0.139 (-0.084, 0.361)	0.161 (-0.063, 0.385)	0.143 (-.085, 0.370)	0.117 (-.111, 0.346)	0.096 (-.135, 0.328)	0.107 (-.123, 0.336)
Glucose [mmol/L]	-0.207 (-0.441, 0.028)	-0.207 (-0.443, 0.029)	-.258 (-.497, -.019)	-.249 (-.488, -.012)	-.252 (-.494, -.0096)	-.235 (-.476, 0.0056)
Glycerol [mmol/L]	0.214 (-0.014, 0.441)	0.215 (-0.013, 0.444)	0.228 (-.0032, 0.460)	0.229 (-.0036, 0.462)	0.226 (-.010, 0.463)	0.246 (0.010, 0.482)
Lactate [mmol/L]	0.0068 (-0.218, 0.231)	-0.0039 (-0.228, 0.220)	0.016 (-.211, 0.243)	0.0085 (-.221, 0.238)	0.00084 (-.232, 0.233)	-.004 (-.232, 0.224)
Pyruvate [mmol/L]	0.020 (-0.203, 0.244)	0.023 (-0.201, 0.246)	0.018 (-.209, 0.245)	0.013 (-.216, 0.241)	0.028 (-.204, 0.259)	0.033 (-.199, 0.265)
Fatty acids						
Total fatty acids [mmol/L]	0.023 (-0.206, 0.252)	0.023 (-0.205, 0.250)	-.041 (-.271, 0.189)	-.0749 (-.305, 0.157)	-.076 (-.311, 0.159)	-.073 (-.308, 0.162)
Monounsaturated fatty acids [mmol/L]	0.082 (-0.138, 0.303)	0.075 (-0.142, 0.292)	0.020 (-.199, 0.240)	-.013 (-.234, 0.207)	-.012 (-.236, 0.211)	-.0093 (-.233, 0.214)
Saturated fatty acids [mmol/L]	0.044 (-0.187, 0.276)	0.048 (-0.183, 0.278)	-.025 (-.259, 0.208)	-.058 (-.292, 0.176)	-.064 (-.302, 0.174)	-.061 (-.298, 0.177)
Inflammation						
Alpha-1-acid glycoprotein [mmol/L]	-0.095 (-0.317, 0.126)	-0.111 (-0.327, 0.106)	-.156 (-.375, 0.063)	-.177 (-.395, 0.041)	-.176 (-.398, 0.045)	-.169 (-.389, 0.052)
Fluid balance						
Creatinine [µmol/L]	-0.067 (-0.213, 0.079)	-0.064 (-0.211, 0.083)	-.048 (-.197, 0.101)	-.053 (-.203, 0.097)	-.062 (-.215, 0.090)	-.056 (-.208, 0.097)
Albumin [standardized concentration units]	-0.316 (-0.524, -0.109)	-0.311 (-0.519, -0.102)	-.361 (-.572, -.149)	-.359 (-.569, -.149)	-.362 (-.575, -.148)	-.355 (-.566, -.144)

Pesticide exposure month

Table S22. Multivariable regression analyses of pesticide exposure in months with total lipoprotein subclasses with standardised metabolomic biomarkers in men

Pesticide exposure month, β (95% CI), Males						
Total lipoprotein	**Unadjusted**	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_P	0.084 (-0.145, 0.313)	0.121 (-0.102, 0.344)	0.110 (-.118, 0.339)	0.119 (-.111, 0.349)	0.124 (-.108, 0.357)	0.125 (-.108, 0.357)
XL_VLDL_P	0.002 (-0.227, 0.231)	0.029 (-0.195, 0.254)	0.016 (-.214, 0.245)	0.012 (-.219, 0.244)	0.013 (-.221, 0.247)	0.016 (-.218, 0.249)
L_VLDL_P	0.025 (-0.199, 0.248)	0.047 (-0.171, 0.266)	0.074 (-.149, 0.297)	0.069 (-.155, 0.293)	0.070 (-.156, 0.297)	0.071 (-.156, 0.297)
M_VLDL_P	0.025 (-0.189, 0.241)	0.054 (-0.155, 0.263)	0.072 (-.142, 0.286)	0.065 (-.151, 0.281)	0.063 (-.155, 0.281)	0.064 (-.153, 0.282)
S_VLDL_P	0.002 (-0.199, 0.204)	0.036 (-0.160, 0.232)	0.043 (-.158, 0.244)	0.035 (-.168, 0.237)	0.031 (-.173, 0.236)	0.033 (-.172, 0.237)
XS_VLDL_P	-0.019 (-0.233, 0.196)	0.018 (-0.193, 0.229)	-.022 (-.238, 0.195)	-.037 (-.255, 0.180)	-.036 (-.255, 0.184)	-.034 (-.252, 0.184)
IDL_P	0.069 (-0.137, 0.276)	0.078 (-0.130, 0.285)	0.093 (-.122, 0.307)	0.094 (-.122, 0.310)	0.106 (-.112, 0.324)	0.105 (-.114, 0.323)
L_LDL_P	0.050 (-0.172, 0.272)	0.076 (-0.147, 0.298)	0.0049 (-.223, 0.233)	-.011 (-.239, 0.217)	-.0079 (-.238, 0.222)	-.0047 (-.233, 0.223)
M_LDL_P	0.041 (-0.178, 0.260)	0.063 (-0.156, 0.282)	0.00063 (-.224, 0.225)	-.015 (-.239, 0.210)	-.013 (-.239, 0.214)	-.0096 (-.234, 0.215)
S_LDL_P	0.049 (-0.171, 0.269)	0.068 (-0.152, 0.289)	0.0098 (-.215, 0.235)	-.0046 (-.231, 0.221)	-.00056 (-.228, 0.227)	0.0025 (-.224, 0.228)
XL_HDL_P	0.107 (-0.109, 0.325)	0.086 (-0.128, 0.299)	0.049 (-.171, 0.268)	0.062 (-.158, 0.283)	0.087 (-.136, 0.309)	0.085 (-.137, 0.308)
L_HDL_P	0.214 (-0.010, 0.437)	0.1800 (-0.038, 0.399)	0.167 (-.057, 0.389)	0.156 (-.069, 0.380)	0.186 (-.039, 0.411)	0.189 (-.035, 0.414)
M_HDL_P	0.067 (-0.149, 0.283)	0.044 (-0.174, 0.261)	0.074 (-.148, 0.297)	0.053 (-.170, 0.277)	0.081 (-.140, 0.303)	0.086 (-.132, 0.305)
S_HDL_P	-0.004 (-0.223, 0.216)	-0.020 (-0.243, 0.202)	-.019 (-.246, 0.208)	-.041 (-.268, 0.186)	-.028 (-.253, 0.198)	-.023 (-.245, 0.200)

Table S23. Multivariable regression analyses of pesticide exposure in months with total lipoprotein subclasses with standardised metabolomic biomarkers in women

Pesticide exposure month, β (95% CI), Females						
Total lipoprotein	**Unadjusted**	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_P	0.211 (-0.048, 0.471)	0.191 (-0.060, 0.442)	0.189 (-.065, 0.444)	0.179 (-.078, 0.437)	0.186 (-.072, 0.443)	0.189 (-.067, 0.447)
XL_VLDL_P	0.038 (-0.238, 0.314)	0.019 (-0.250, 0.287)	0.010 (-.262, 0.283)	-.012 (-.288, 0.263)	-.016 (-.291, 0.259)	-.013 (-.287, 0.262)
L_VLDL_P	0.120 (-0.154, 0.395)	0.108 (-0.158, 0.374)	0.115 (-.155, 0.385)	0.096 (-.177, 0.369)	0.097 (-.177, 0.370)	0.101 (-.172, 0.374)
M_VLDL_P	0.185 (-0.068, 0.438)	0.164 (-0.079, 0.407)	0.147 (-.100, 0.395)	0.131 (-.118, 0.381)	0.135 (-.114, 0.385)	0.141 (-.108, 0.389)
S_VLDL_P	0.213 (-0.056, 0.481)	0.198 (-0.061, 0.457)	0.161 (-.101, 0.424)	0.125 (-.139, 0.389)	0.129 (-.134, 0.393)	0.129 (-.135, 0.393)
XS_VLDL_P	0.267 (-0.011, 0.545)	0.258 (-0.015, 0.531)	0.193 (-.084, 0.469)	0.157 (-.121, 0.435)	0.169 (-.108, 0.446)	0.167 (-.110, 0.444)
IDL_P	-0.037 (-0.361, 0.287)	-0.011 (-0.339, 0.316)	0.011 (-.322, 0.345)	0.013 (-.324, 0.351)	0.012 (-.324, 0.347)	0.013 (-.322, 0.349)
L_LDL_P	0.229 (-0.049, 0.508)	0.220 (-0.058, 0.499)	0.145 (-.136, 0.426)	0.105 (-.177, 0.386)	0.116 (-.165, 0.396)	0.113 (-.167, 0.394)
M_LDL_P	0.241 (-0.039, 0.519)	0.231 (-0.047, 0.509)	0.161 (-.120, 0.442)	0.121 (-.159, 0.403)	0.131 (-.149, 0.411)	0.128 (-.152, 0.408)
S_LDL_P	0.251 (-0.029, 0.531)	0.242 (-0.037, 0.521)	0.176 (-.106, 0.458)	0.136 (-.147, 0.419)	0.143 (-.139, 0.425)	0.140 (-.142, 0.422)
XL_HDL_P	-0.024 (-0.269, 0.221)	0.013 (-0.228, 0.255)	-.0089 (-.255, 0.237)	-.047 (-.295, 0.200)	-.049 (-.297, 0.198)	-.055 (-.299, 0.189)
L_HDL_P	-0.273 (-0.517, -0.028)	-0.236 (-0.475, 0.003)	-.266 (-.508, -.024)	-.306 (-.551, -.061)	-.318 (-.563, -.074)	-.318 (-.563, -.074)
M_HDL_P	-0.308 (-0.589, -0.026)	-0.302 (-0.587, -0.018)	-.331 (-.620, -.043)	-.3541 (-.646, -.062)	-.378 (-.669, -.087)	-.372 (-.661, -.083)
S_HDL_P	-0.235 (-0.529, 0.059)	-0.238 (-0.536, 0.059)	-.290 (-.591, 0.010)	-.319 (-.622, -.017)	-.340 (-.643, -.0374)	-.340 (-.641, -.040)

Table S24. Multivariable regression analyses of pesticide exposure in months with triglyceride subclasses with standardised metabolomic biomarkers in men

Pesticide exposure month, β (95% CI), Males						
Triglycerides	**Unadjusted**	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_TG	0.080 (-0.146, 0.306)	0.115 (-0.105, 0.335)	0.105 (-.119, 0.331)	0.116 (-.111, 0.342)	0.122 (-.107, 0.351)	0.122 (-.107, 0.351)
XL_VLDL_TG	-0.025 (-0.247, 0.197)	-0.003 (-0.221, 0.215)	-.011 (-.234, 0.212)	-.017 (-.241, 0.208)	-.017 (-.244, 0.210)	-.014 (-.241, 0.213)
L_VLDL_TG	0.027 (-0.193, 0.246)	0.044 (-0.171, 0.259)	0.079 (-.141, 0.298)	0.073 (-.148, 0.293)	0.074 (-.148, 0.297)	0.074 (-.148, 0.297)
M_VLDL_TG	0.011 (-0.196, 0.217)	0.032 (-0.169, 0.233)	0.059 (-.147, 0.265)	0.052 (-.156, 0.259)	0.049 (-.159, 0.258)	0.050 (-.158, 0.259)
S_VLDL_TG	0.009 (-0.188, 0.204)	0.035 (-0.155, 0.226)	0.057 (-.138, 0.253)	0.050 (-.147, 0.247)	0.045 (-.153, 0.244)	0.046 (-.152, 0.245)
XS_VLDL_TG	-0.0004 (-0.201, 0.201)	0.028 (-0.168, 0.223)	0.029 (-.171, 0.229)	0.016 (-.185, 0.218)	0.012 (-.192, 0.216)	0.014 (-.189, 0.216)
VLDL_TG	0.019 (-0.194, 0.231)	0.043 (-0.163, 0.249)	0.064 (-.147, 0.274)	0.057 (-.156, 0.269)	0.055 (-.159, 0.269)	0.056 (-.158, 0.270)
IDL_TG	0.012 (-0.196, 0.219)	0.034 (-0.169, 0.238)	0.0088 (-.200, 0.218)	-.0069 (-.216, 0.202)	-.0083 (-.219, 0.203)	-.0063 (-.215, 0.203)
L_LDL_TG	0.044 (-0.167, 0.255)	0.061 (-.148, 0.269)	0.018 (-.195, 0.232)	0.0039 (-.209, 0.217)	0.004 (-.211, 0.219)	0.0062 (-.206, 0.218)
M_LDL_TG	0.063 (-0.149, 0.275)	0.074 (-0.136, 0.284)	0.032 (-.183, 0.247)	0.020 (-.195, 0.236)	0.019 (-.198, 0.236)	0.021 (-.193, 0.235)
S_LDL_TG	0.060 (-0.149, 0.270)	0.076 (-0.131, 0.283)	0.049 (-.162, 0.261)	0.038 (-.174, 0.250)	0.037 (-.177, 0.251)	0.039 (-.173, 0.251)
LDL_TG	0.051 (-0.160, 0.263)	0.066 (-0.143, 0.275)	0.026 (-.188, 0.239)	0.013 (-.201, 0.227)	0.013 (-.203, 0.229)	0.015 (-.198, 0.228)
XL_HDL_TG	0.235 (0.015, 0.456)	0.262 (0.039, 0.484)	0.194 (-.033, 0.421)	0.188 (-.041, 0.416)	0.189 (-.042, 0.419)	0.191 (-.038, 0.420)
L_HDL_TG	0.225 (-0.004, 0.454)	0.224 (-0.008, 0.456)	0.192 (-.045, 0.429)	0.179 (-.059, 0.416)	0.183 (-.056, 0.422)	0.193 (-.043, 0.429)
M_HDL_TG	0.048 (-0.169, 0.265)	0.074 (-0.140, 0.289)	0.075 (-.144, 0.295)	0.073 (-.149, 0.295)	0.077 (-.146, 0.299)	0.079 (-.142, 0.302)
S_HDL_TG	-0.005 (-0.200, 0.190)	0.017 (-0.173, 0.206)	-.012 (-.206, 0.181)	-.0087 (-.203, 0.186)	-.018 (-.214, 0.178)	-.018 (-.212, 0.177)
HDL_TG	0.136 (-0.079, 0.351)	0.159 (-0.056, 0.374)	0.127 (-.092, 0.347)	0.120 (-.101, 0.341)	0.12 (-.101, 0.344)	0.124 (-.097, 0.345)
Serum_TG	0.036 (-0.185, 0.257)	0.063 (-0.151, 0.277)	0.071 (-.148, 0.290)	0.062 (-.159, 0.283)	0.062 (-.161, 0.285)	0.064 (-.158, 0.287)

Table S25. Multivariable regression analyses of pesticide exposure in months with triglyceride subclasses with standardised metabolomic biomarkers in women

Pesticide exposure month, β (95% CI), Females						
Triglycerides	**Unadjusted**	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_TG	0.219 (-0.039, 0.478)	0.197 (-0.052, 0.447)	0.198 (-.055, 0.452)	0.192 (-.064, 0.448)	0.197 (-.059, 0.453)	0.201 (-.055, 0.457)
XL_VLDL_TG	0.030 (-0.252, 0.312)	0.009 (-0.267, 0.286)	0.0048 (-.275, 0.285)	-.019 (302, 0.263)	-.023 (-.305, 0.259)	-.020 (-.301, 0.261)
L_VLDL_TG	0.114 (-.163, 0.391)	0.100 (-0.169, 0.369)	0.111 (-.162, 0.385)	0.093 (-.184, 0.369)	0.093 (-.184, 0.371)	0.098 (-.178, 0.375)
M_VLDL_TG	0.168 (-0.096, 0.431)	0.146 (-0.109, 0.401)	0.139 (-.119, 0.398)	0.129 (-.132, 0.389)	0.129 (-.132, 0.391)	0.136 (-.124, 0.397)
S_VLDL_TG	0.233 (-0.052, 0.518)	0.221 (-0.056, 0.497)	0.197 (-.085, 0.478)	0.167 (-.116, 0.451)	0.166 (-.118, 0.449)	0.166 (-.118, 0.449)
XS_VLDL_TG	0.238 (-0.052, 0.528)	0.237 (-0.046, 0.519)	0.188 (-.099, 0.475)	0.142 (-.147, 0.430)	0.142 (-.147, 0.430)	0.139 (-.149, 0.427)
VLDL_TG	0.193 (-0.071, 0.457)	0.174 (-0.081, 0.428)	0.158 (-.100, 0.417)	0.136 (-.124, 0.397)	0.136 (-.125, 0.396)	0.140 (-.119, 0.400)
IDL_TG	0.279 (-0.013, 0.572)	0.286 (-0.002, 0.574)	0.220 (-.072, 0.512)	0.165 (-.129, 0.458)	0.165 (-.128, 0.459)	0.159 (-.133, 0.452)
L_LDL_TG	0.252 (-0.044, 0.548)	0.261 (-0.033, 0.554)	0.187 (-.111, 0.484)	0.127 (-.171, 0.426)	0.126 (-.173, 0.425)	0.119 (-.179, 0.417)
M_LDL_TG	0.251 (-0.039, 0.542)	0.256 (-0.034, 0.545)	0.194 (-.099, 0.487)	0.139 (-.155, 0.435)	0.135 (-.159, 0.429)	0.127 (-.166, 0.421)
S_LDL_TG	0.244 (-0.047, 0.536)	0.241 (-0.047, 0.529)	0.187 (-.105, 0.479)	0.136 (-.157, 0.429)	0.131 (-.162, 0.423)	0.125 (-.167, 0.418)
LDL_TG	0.249 (-0.045, 0.542)	0.254 (-0.037, 0.545)	0.184 (-.111, 0.479)	0.127 (-.169, 0.423)	0.124 (-.172, 0.419)	0.117 (-.178, 0.412)
XL_HDL_TG	0.009 (-0.275, 0.295)	0.042 (-0.244, 0.328)	-.022 (-.312, 0.269)	-.074 (-.367, 0.219)	-.067 (-.359, 0.225)	-.068 (-.361, 0.224)
L_HDL_TG	-0.094 (-0.371, 0.184)	-0.060 (-0.339, 0.219)	-.127 (-.411, 0.156)	-.179 (-.464, 0.105)	-.181 (-.466, 0.104)	-.185 (-.469, 0.099)
M_HDL_TG	0.118 (-0.162, 0.398)	0.107 (-0.172, 0.385)	0.061 (-.222, 0.343)	0.023 (-.262, 0.307)	0.019 (-.267, 0.304)	0.019 (-.266, 0.305)
S_HDL_TG	0.271 (-0.029, 0.571)	0.268 (-0.027, 0.563)	0.217 (-.083, 0.517)	0.167 (-.134, 0.469)	0.169 (-.134, 0.471)	0.160 (-.141, 0.462)
HDL_TG	0.060 (-0.234, 0.354)	0.075 (-0.220, 0.369)	0.0043 (-.294, 0.303)	-.058 (-.358, 0.242)	-.059 (-.359, 0.242)	-.062 (-.362, 0.238)
Serum_TG	0.209 (-0.052, 0.472)	0.200 (-0.053, 0.454)	0.165 (-.092, 0.422)	0.127 (-.132, 0.385)	0.126 (-.133, 0.385)	0.127 (-.132, 0.386)

Table S26. Multivariable regression analyses of pesticide exposure in months with phospholipid subclasses with standardised metabolomic biomarkers in men

Pesticide exposure month, β (95% CI), Males						
Phospholipids	**Unadjusted**	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_PL	0.075 (-0.144, 0.293)	0.106 (-0.109, 0.321)	0.105 (-.115, 0.325)	0.106 (-.115, 0.328)	0.114 (-.109, 0.338)	0.116 (-.108, 0.340)
XL_VLDL_PL	0.066 (-0.160, 0.293)	0.094 (-0.129, 0.317)	0.076 (-.152, 0.304)	0.073 (-.157, 0.303)	0.079 (-.154, 0.311)	0.082 (-.150, 0.315)
L_VLDL_PL	0.064 (-0.157, 0.286)	0.089 (-0.128, 0.306)	0.112 (-.109, 0.333)	0.107 (-.116, 0.329)	0.109 (-.115, 0.335)	0.110 (-.115, 0.335)
M_VLDL_PL	0.033 (-0.186, 0.251)	0.064 (-0.148, 0.277)	0.076 (-.142, 0.293)	0.068 (-.152, 0.287)	0.066 (-.155, 0.287)	0.068 (-.153, 0.289)
S_VLDL_PL	-0.016 (-0.221, 0.189)	0.018 (-0.182, 0.218)	0.028 (-.176, 0.233)	0.020 (-.186, 0.227)	0.019 (-.189, 0.227)	0.019 (-.188, 0.227)
XS_VLDL_PL	-0.022 (-0.243, 0.199)	0.011 (-0.209, 0.231)	-.035 (-.261, 0.191)	-.054 (-.280, 0.172)	-.052 (-.280, 0.177)	-.049 (-.276, 0.178)
IDL_PL	0.029 (-0.201, 0.259)	0.056 (-0.175, 0.287)	-.023 (-.259, 0.213)	-.041 (-.277, 0.196)	-.037 (-.275, 0.202)	-.034 (-.270, 0.203)
L_LDL_PL	0.057 (-0.168, 0.282)	0.081 (-0.145, 0.307)	0.0093 (-.222, 0.240)	-.0089 (-.240, 0.223)	-.0026 (-.236, 0.231)	0.00091 (-.230, 0.232)
M_LDL_PL	0.081 (-0.146, 0.308)	0.105 (-0.122, 0.331)	0.041 (-.191, 0.272)	0.025 (-.207, 0.257)	0.034 (-.200, 0.268)	0.037 (-.195, 0.269)
S_LDL_PL	0.101 (-0.122, 0.324)	0.118 (-0.105, 0.341)	0.058 (-.169, 0.286)	0.044 (-.185, 0.272)	0.057 (-.173, 0.287)	0.060 (-.168, 0.288)
XL_HDL_PL	0.006 (-0.231, 0.243)	-0.023 (-0.252, 0.205)	-.038 (-.273, 0.197)	-.034 (-.270, 0.203)	-.017 (-.255, 0.220)	-.018 (-.256, 0.219)
L_HDL_PL	0.182 (-0.044, 0.408)	0.147 (-0.074, 0.369)	0.141 (-.085, 0.368)	0.129 (-.099, 0.357)	0.160 (-.068, 0.389)	0.164 (-.064, 0.391)
M_HDL_PL	0.065 (-0.151, 0.282)	0.041 (-0.177, 0.258)	0.066 (-.157, 0.289)	0.045 (-.178, 0.269)	0.076 (-.145, 0.297)	0.081 (-.137, 0.299)
S_HDL_PL	0.014 (-0.196, 0.224)	-0.008 (-0.221, 0.204)	0.020 (-.197, 0.237)	0.000019 (-.218, 0.218)	0.020 (-.195, 0.235)	0.025 (-.187, 0.238)

Table S27. Multivariable regression analyses of pesticide exposure in months with phospholipid subclasses with standardised metabolomic biomarkers in women

Pesticide exposure month, β (95% CI), Females						
Phospholipids	**Unadjusted**	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_PL	0.092 (-0.175, 0.359)	0.074 (-0.188, 0.336)	0.076 (-.189, 0.342)	0.061 (-.208, 0.329)	0.062 (-.208, 0.331)	0.068 (-.201, 0.337)
XL_VLDL_PL	0.058 (-0.226, 0.342)	0.036 (-0.242, 0.315)	0.018 (-.263, 0.299)	-.0054 (-.289, 0.279)	-.0073 (-.292, 0.278)	-.0047 (-.289, 0.279)
L_VLDL_PL	0.058 (-0.218, 0.334)	0.045 (-0.222, 0.312)	0.042 (-.229, 0.313)	0.017 (-.258, 0.291)	0.018 (-.257, 0.293)	0.022 (-.253, 0.296)
M_VLDL_PL	0.193 (-0.064, 0.449)	0.172 (-0.075, 0.419)	0.148 (-.104, 0.399)	0.126 (-.127, 0.379)	0.130 (-.123, 0.383)	0.135 (-.118, 0.387)
S_VLDL_PL	0.215 (-0.068, 0.497)	0.202 (-0.072, 0.477)	0.164 (-.114, 0.443)	0.123 (-.157, 0.403)	0.124 (-.155, 0.404)	0.122 (-.157, 0.402)
XS_VLDL_PL	0.269 (-0.012, 0.549)	0.261 (-0.018, 0.539)	0.193 (-.089, 0.474)	0.159 (-.124, 0.442)	0.170 (-.112, 0.452)	0.169 (-.113, 0.451)
IDL_PL	0.212 (-0.069, 0.493)	0.204 (-0.077, 0.485)	0.126 (-.158, 0.409)	0.086 (-.199, 0.371)	0.099 (-.184, 0.383)	0.098 (-.185, 0.382)
L_LDL_PL	0.181 (-0.094, 0.457)	0.172 (-0.103, 0.448)	0.097 (-.181, 0.375)	0.062 (-.217, 0.340)	0.071 (-.207, 0.349)	0.070 (-.207, 0.348)
M_LDL_PL	0.218 (-0.061, 0.498)	0.212 (-0.066, 0.489)	0.133 (-.147, 0.414)	0.092 (-.189, 0.373)	0.099 (-.182, 0.379)	0.096 (-.184, 0.376)
S_LDL_PL	0.216 (-0.062, 0.494)	0.214 (-0.063, 0.490)	0.139 (-.139, 0.419)	0.094 (-.186, 0.375)	0.095 (-.186, 0.376)	0.092 (-.188, 0.373)
XL_HDL_PL	-0.038 (-0.240, 0.164)	-0.006 (-0.203, 0.191)	-.019 (-.220, 0.180)	-.048 (-.249, 0.155)	-.051 (-.253, 0.151)	-.054 (-.254, 0.147)
L_HDL_PL	-0.293 (-0.539, -0.046)	-0.259 (-0.501, -0.019)	-.288 (-.533, -.043)	-.326 (-.574, -.078)	-.340 (-.587, -.093)	-.339 (-.586, -.091)
M_HDL_PL	-0.312 (-0.599, -0.025)	-0.303 (-0.591, -0.014)	-.336 (-.629, -.043)	-.369 (-.665, -.073)	-.393 (-.689, -.098)	-.388 (-.682, -.094)
S_HDL_PL	-0.481 (-0.767, -0.194)	-0.484 (-0.774, -0.194)	-.500 (-.795, -.206)	-.509 (-.807, -.213)	-.536 (-.832, -.239)	-.532 (-.826, -.238)

Table S28. Multivariable regression analyses of pesticide exposure in months with cholesterol esters subclasses with standardised metabolomic biomarkers in men

Pesticide exposure month, β (95% CI), Males						
Cholesterol esters	**Unadjusted**	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_CE	0.091 (-0.119, 0.301)	0.135 (-0.072, 0.341)	0.126 (-.085, 0.338)	0.135 (-.078, 0.348)	0.131 (-.085, 0.346)	0.129 (-.086, 0.345)
XL_VLDL_CE	-0.023 (-0.241, 0.194)	0.019 (-0.195, 0.233)	-.0096 (-.229, 0.209)	-.0024 (-.223, 0.218)	-.011 (-.234, 0.212)	-.011 (-.234, 0.212)
L_VLDL_CE	-0.007 (-0.228, 0.213)	0.031 (-0.187, 0.249)	0.059 (-.164, 0.282)	0.064 (-.159, 0.286)	0.059 (-.166, 0.283)	0.059 (-.166, 0.283)
M_VLDL_CE	0.052 (-0.170, 0.274)	0.098 (-0.119, 0.315)	0.086 (-.137, 0.308)	0.082 (-.142, 0.306)	0.078 (-.148, 0.304)	0.079 (-.147, 0.305)
S_VLDL_CE	-0.004 (-0.211, 0.203)	0.029 (-0.175, 0.234)	-.0063 (-.216, 0.203)	-.014 (-.225, 0.197)	-.017 (-.230, 0.196)	-.016 (-.228, 0.196)
XS_VLDL_CE	-0.041 (-0.261, 0.178)	-0.006 (-0.225, 0.213)	-.073 (-.297, 0.151)	-.082 (-.308, 0.143)	-.077 (-.304, 0.149)	-.077 (-.302, 0.149)
IDL_CE	0.041 (-0.179, 0.261)	0.071 (-0.149, 0.291)	-.0074 (-.233, 0.218)	-.021 (-.248, 0.205)	-.013 (-.241, 0.215)	-.010 (-.237, 0.216)
L_LDL_CE	0.044 (-0.177, 0.265)	0.070 (-0.151, 0.292)	-.00040 (-.227, 0.226)	-.015 (-.243, 0.212)	-.013 (-.242, 0.216)	-.0099 (-.237, 0.217)
M_LDL_CE	0.015 (-0.204, 0.233)	0.034 (-0.186, 0.254)	-.027 (-.252, 0.198)	-.041 (-.267, 0.185)	-.043 (-.271, 0.185)	-.039 (-.267, 0.187)
S_LDL_CE	0.006 (-0.219, 0.231)	0.022 (-0.205, 0.249)	-.038 (-.270, 0.195)	-.051 (-.285, 0.183)	-.052 (-.288, 0.184)	-.049 (-.284, 0.185)
XL_HDL_CE	0.118 (-0.107, 0.343)	0.102 (-0.122, 0.327)	0.059 (-.171, 0.289)	0.086 (-.146, 0.319)	0.109 (-.126, 0.344)	0.107 (-.126, 0.341)
L_HDL_CE	0.224 (-0.007, 0.455)	0.189 (-0.035, 0.414)	0.174 (-.056, 0.403)	0.165 (-.066, 0.396)	0.195 (-.038, 0.428)	0.198 (-.035, 0.429)
M_HDL_CE	0.057 (-0.163, 0.277)	0.029 (-0.191, 0.249)	0.067 (-.158, 0.292)	0.046 (-.179, 0.272)	0.072 (-.153, 0.296)	0.076 (-.145, 0.298)
S_HDL_CE	-0.099 (-0.343, 0.144)	-0.114 (-0.361, 0.133)	-.145 (-.398, 0.108)	-.163 (-.417, 0.091)	-.166 (-.422, 0.091)	-.162 (-.417, 0.093)
EstC	0.088 (-0.137, 0.313)	0.104 (-0.123, 0.331)	0.049 (-.183, 0.280)	0.035 (-.197, 0.268)	0.051 (-.183, 0.286)	0.056 (-.176, 0.288)

Table S29. Multivariable regression analyses of pesticide exposure in months with cholesterol esters subclasses with standardised metabolomic biomarkers in women

Pesticide exposure month, β (95% CI), Females						
Cholesterol esters	**Unadjusted**	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_CE	0.297 (0.009, 0.585)	0.279 (-0.004, 0.562)	0.263 (-.024, 0.551)	0.251 (-.039, 0.542)	0.269 (-.021, 0.559)	0.272 (-.018, 0.561)
XL_VLDL_CE	0.033 (-0.263, 0.329)	0.015 (-0.277, 0.308)	-.00035 (-.295, 0.294)	-.018 (-.316, 0.279)	-.016 (-.311, 0.279)	-.014 (-.309, 0.280)
L_VLDL_CE	0.137 (-0.152, 0.427)	0.124 (-0.159, 0.408)	0.119 (-.169, 0.408)	0.104 (-.187, 0.396)	0.113 (-.179, 0.405)	0.112 (-.180, 0.404)
M_VLDL_CE	0.270 (0.008, 0.533)	0.250 (-0.006, 0.506)	0.209 (-.049, 0.46 9)	0.187 (-.075, 0.449)	0.202 (-.059, 0.464)	0.205 (-.056, 0.466)
S_VLDL_CE	0.191 (-0.083, 0.465)	0.172 (-0.096, 0.441)	0.117 (-.155, 0.389)	0.083 (-.189, 0.357)	0.099 (-.172, 0.371)	0.097 (-.175, 0.369)
XS_VLDL_CE	0.238 (-0.030, 0.507)	0.224 (-0.043, 0.491)	0.167 (-.103, 0.438)	0.154 (-.119, 0.427)	0.174 (-.097, 0.445)	0.171 (-.099, 0.442)
IDL_CE	0.217 (-0.057, 0.491)	0.207 (-0.067, 0.480)	0.136 (-.140, 0.413)	0.107 (-.171, 0.385)	0.122 (-.155, 0.398)	0.121 (-.156, 0.398)
L_LDL_CE	0.231 (-0.051, 0.513)	0.218 (-0.063, 0.500)	0.148 (-.136, 0.433)	0.116 (-.169, 0.401)	0.129 (-.156, 0.413)	0.127 (-.157, 0.411)
M_LDL_CE	0.232 (-0.049, 0.512)	0.218 (-0.063, 0.499)	0.159 (-.125, 0.444)	0.131 (-.154, 0.416)	0.143 (-.139, 0.426)	0.142 (-.140, 0.425)
S_LDL_CE	0.237 (-0.037, 0.511)	0.226 (-0.049, 0.500)	0.173 (-.104, 0.451)	0.145 (-.133, 0.424)	0.157 (-.119, 0.434)	0.156 (-.121, 0.433)
XL_HDL_CE	0.039 (-0.228, 0.306)	0.067 (-0.201, 0.335)	0.046 (-.227, 0.318)	0.010 (-.265, 0.285)	0.011 (-.265, 0.286)	0.00043 (-.269, 0.270)
L_HDL_CE	-0.247 (-0.474, -0.021)	-0.211 (-0.429, 0.009)	-.231 (-.454, -.0085)	-.266 (-.491, -.041)	-.277 (-.502, -.053)	-.278 (-.503, -.053)
M_HDL_CE	-0.327 (-0.602, -0.052)	-0.325 (-0.601, -0.048)	-.336 (-.617, -.055)	-.337 (-.620, -.053)	-.360 (-.643, -.077)	-.354 (-.634, -.073)
S_HDL_CE	0.011 (-0.244, 0.265)	0.003 (-0.253, 0.259)	-.051 (-.309, 0.208)	-.076 (-.335, 0.182)	-.084 (-.343, 0.176)	-.087 (-.345, 0.171)
EstC	0.132 (-0.146, 0.409)	0.133 (-0.146, 0.412)	0.062 (-.220, 0.344)	0.016 (-.266, 0.299)	0.019 (-.264, 0.303)	0.018 (-.266, 0.301)

Table S30. Multivariable regression analyses of pesticide exposure in months with free cholesterol subclasses with standardised metabolomic biomarkers in men

Pesticide exposure month, β (95% CI), Males						
Free cholesterol	**Unadjusted**	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_FC	0.081 (-0.138, 0.301)	0.109 (-0.105, 0.325)	0.098 (-.123, 0.318)	0.099 (-.123, 0.321)	0.101 (-.123, 0.326)	0.104 (-.120, 0.328)
XL_VLDL_FC	0.084 (-0.140, 0.309)	0.117 (-0.103, 0.338)	0.091 (-.135, 0.317)	0.091 (-.137, 0.319)	0.094 (-.137, 0.325)	0.097 (-.134, 0.327)
L_VLDL_FC	-0.004 (-0.219, 0.211)	0.018 (-0.193, 0.229)	0.038 (-.178, 0.254)	0.032 (-.186, 0.249)	0.032 (-.188, 0.252)	0.033 (-.187, 0.253)
M_VLDL_FC	0.019 (-0.194, 0.234)	0.048 (-0.159, 0.256)	0.060 (-.153, 0.274)	0.052 (-.163, 0.267)	0.049 (-.168, 0.266)	0.051 (-.166, 0.268)
S_VLDL_FC	-0.008 (-0.209, 0.192)	0.024 (-0.172, 0.220)	0.024 (-.177, 0.226)	0.014 (-.189, 0.217)	0.012 (-.192, 0.217)	0.014 (-.190, 0.218)
XS_VLDL_FC	-0.053 (-0.274, 0.168)	-0.020 (-0.241, 0.200)	-.063 (-.289, 0.163)	-.084 (-.311, 0.144)	-.085 (-.315, 0.144)	-.083 (-.311, 0.144)
IDL_FC	0.011 (-0.221, 0.244)	0.036 (-0.199, 0.271)	-.041 (-.281, 0.199)	-.059 (-.299, 0.183)	-.056 (-.299, 0.187)	-.053 (-.295, 0.188)
L_LDL_FC	0.036 (-0.192, 0.265)	0.058 (-0.172, 0.289)	-.026 (-.261, 0.209)	-.042 (-.279, 0.194)	-.039 (-.278, 0.198)	-.037 (-.273, 0.199)
M_LDL_FC	0.064 (-0.155, 0.284)	0.085 (-0.136, 0.306)	0.010 (-.215, 0.236)	-.0047 (-.231, 0.221)	0.00058 (-.227, 0.228)	0.0036 (-.222, 0.229)
S_LDL_FC	0.078 (-0.146, 0.302)	0.098 (-0.128, 0.323)	0.023 (-.207, 0.253)	0.0094 (-.221, 0.240)	0.017 (-.216, 0.249)	0.019 (-.211, 0.249)
XL_HDL_FC	0.110 (-0.128, 0.348)	0.095 (-0.138, 0.328)	0.048 (-.192, 0.287)	0.057 (-.184, 0.298)	0.081 (-.163, 0.325)	0.079 (-.164, 0.322)
L_HDL_FC	0.165 (-0.075, 0.406)	0.131 (-0.102, 0.364)	0.111 (-.127, 0.349)	0.103 (-.137, 0.342)	0.130 (-.112, 0.372)	0.133 (-.109, 0.374)
M_HDL_FC	0.035 (-0.191, 0.261)	0.010 (-0.216, 0.237)	0.036 (-.195, 0.268)	0.014 (-.218, 0.247)	0.040 (-.191, 0.272)	0.045(-.184, 0.274)
S_HDL_FC	-0.003 (-0.227, 0.222)	-0.022 (-0.249, 0.205)	-.019 (-.251, 0.213)	-.042 (-.275, 0.190)	-.025 (-.256, 0.206)	-.020 (-.249, 0.208)
Free cholesterol	0.062 (-0.166, 0.289)	0.079 (-0.150, 0.309)	0.010 (-.225, 0.245)	-.012 (-.248, 0.224)	-.0026 (-.241, 0.235)	0.0019 (-.234, 0.238)

Table S31. Multivariable regression analyses of pesticide exposure in months with free cholesterol subclasses with standardised metabolomic biomarkers in women

Pesticide exposure month, β (95% CI), females						
Free cholesterol	**Unadjusted**	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_FC	0.111 (-0.160, 0.383)	0.096 (-0.169, 0.362)	0.084 (-.186, 0.353)	0.064 (-.209, 0.337)	0.066 (-.207, 0.339)	0.072 (-.201, 0.345)
XL_VLDL_FC	0.034 (-0.248, 0.316)	0.014 (-0.262, 0.291)	-.0082 (-.285, 0.268)	-.030 (-.310, 0.249)	-.029 (-.309, 0.251)	-.027 (-.308, 0.253)
L_VLDL_FC	0.017 (-0.272, 0.306)	0.006 (-0.275, 0.288)	0.00086 (-.285, 0.287)	-.028 (-.318, 0.261)	-.028 (-.318, 0.262)	-.024 (-.313, 0.266)
M_VLDL_FC	0.174 (-0.091, 0.438)	0.156 (-0.100, 0.411)	0.128 (-.131, 0.388)	0.101 (-.161, 0.363)	0.104 (-.158, 0.366)	0.108 (-.153, 0.369)
S_VLDL_FC	0.175 (-0.105, 0.454)	0.165 (-0.107, 0.436)	0.118 (-.158, 0.394)	0.075 (-.202, 0.352)	0.078 (-.199, 0.354)	0.076 (-.201, 0.352)
XS_VLDL_FC	0.213 (-0.062, 0.487)	0.206 (-0.066, 0.479)	0.145 (-.132, 0.421)	0.112 (-.166, 0.390)	0.125 (-.153, 0.402)	0.123 (-.155, 0.399)
IDL_FC	0.215 (-0.062, 0.491)	0.210 (-0.067, 0.487)	0.137 (-.144, 0.417)	0.100 (-.181, 0.382)	0.114 (-.166, 0.394)	0.113 (-.167, 0.393)
L_LDL_FC	0.214 (-0.060, 0.489)	0.208 (-0.067, 0.483)	0.133 (-.145, 0.411)	0.096 (-.183, 0.374)	0.108 (-.169, 0.386)	0.106 (-.171, 0.383)
M_LDL_FC	0.229 (-0.044, 0.501)	0.224 (-0.048, 0.496)	0.148 (-.127, 0.422)	0.108 (-.166, 0.383)	0.117 (-.157, 0.391)	0.113 (-.162, 0.387)
S_LDL_FC	0.253 (-0.026, 0.531)	0.249 (-0.029, 0.526)	0.173 (-.107, 0.454)	0.134 (-.147, 0.415)	0.139 (-.142, 0.421)	0.134 (-.146, 0.415)
XL_HDL_FC	0.064 (-0.178, 0.306)	0.094 (-0.146, 0.335)	0.077 (-.168, 0.321)	0.045 (-.201, 0.292)	0.047 (-.200, 0.293)	0.043 (-.201, 0.289)
L_HDL_FC	-0.207 (-0.425, 0.011)	-0.171 (-0.382, 0.039)	-.188 (-.402, 0.026)	-.219 (-.435, -.0026)	-.229 (-.445, -.014)	-.229 (-.445, -.014)
M_HDL_FC	-0.279 (-0.552, -0.008)	-0.271 (-0.544, 0.002)	-.304 (-.58, -.027)	-.331 (-.611, -.051)	-.354 (-.633, -.074)	-.349 (-.627, -.071)
S_HDL_FC	-0.471 (-0.770, -0.172)	-0.466 (-0.768, -0.164)	-.511 (-.817, -.204)	-.554 (-.863, -.246)	-.576 (-.885, -.267)	-.576 (-.883, -.269)
Free cholesterol	0.129 (-0.157, 0.416)	0.132 (-0.155, 0.419)	0.053 (-.237, 0.343)	0.0079 (-.284, 0.299)	0.015 (-.277, 0.306)	0.014 (-.277, 0.306)

Table S32. Multivariable regression analyses of pesticide exposure in months with total lipid subclasses with standardised metabolomic biomarkers in men

Pesticide exposure month, β (95% CI), Males						
Total lipids	**Unadjusted**	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_L	0.083 (-0.144, 0.311)	0.121 (-0.101, 0.343)	0.109 (-.118, 0.337)	0.118 (-.110, 0.347)	0.123 (-.108, 0.354)	0.123 (-.108, 0.354)
XL_VLDL_L	0.011 (-0.218, 0.240)	0.040 (-0.185, 0.265)	0.025 (-.205, 0.255)	0.022 (-.209, 0.254)	0.023 (-.211, 0.257)	0.026 (-.208, 0.260)
L_VLDL_L	0.024 (-0.197, 0.245)	0.048 (-0.169, 0.264)	0.073 (-.148, 0.294)	0.068 (-.154, 0.291)	0.069 (-.155, 0.294)	0.069 (-.155, 0.294)
M_VLDL_L	0.027 (-0.189, 0.243)	0.057 (-0.153, 0.267)	0.073 (-.142, 0.288)	0.066 (-.1503, 0.283)	0.064 (-.155, 0.283)	0.065 (-.153, 0.284)
S_VLDL_L	0.0007 (-0.201, 0.203)	0.034 (-0.162, 0.231)	0.038 (-.163, 0.239)	0.029 (-.173, 0.233)	0.027 (-.178, 0.232)	0.028 (-.177, 0.233)
XS_VLDL_L	-0.023 (-0.235, 0.189)	0.014 (-0.196, 0.223)	-.029 (-.244, 0.186)	-.045 (-.261, 0.171)	-.043 (-.261, 0.175)	-.041 (-.258, 0.175)
IDL_L	0.036 (-0.186, 0.257)	0.064 (-0.158, 0.285)	-.011 (-.238, 0.216)	-.027 (-.255, 0.200)	-.022 (-.251, 0.207)	-.019 (-.246, 0.209)
L_LDL_L	0.048 (-0.175, 0.270)	0.073 (-0.150, 0.296)	0.001 (-.227, 0.229)	-.015 (-.244, 0.214)	-.012 (-.242, 0.219)	-.0087 (-.237, 0.219)
M_LDL_L	0.041 (-0.181, 0.264)	0.063 (-0.159, 0.286)	-.00084 (-.229, 0.227)	-.016 (-.245, 0.212)	-.015 (-.245, 0.216)	-.011 (-.239, 0.217)
S_LDL_L	0.048 (-0.170, 0.266)	0.067 (-0.152, 0.285)	0.0067 (-.217, 0.230)	-.0075 (-.232, 0.217)	-.0034 (-.229, 0.2223)	-.00043 (-.225, 0.224)
XL_HDL_L	0.106 (-0.115, 0.327)	0.084 (-0.133, 0.302)	0.046 (-.177, 0.269)	0.060 (-.164, 0.285)	0.085 (-.142, 0.312)	0.084 (-.143, 0.309)
L_HDL_L	0.212 (-0.013, 0.437)	0.178 (-0.042, 0.398)	0.165 (-.059, 0.389)	0.154 (-.072, 0.379)	0.184 (-.043, 0.411)	0.188 (-.038, 0.414)
M_HDL_L	0.064 (-0.152, 0.279)	0.039 (-0.177, 0.256)	0.070 (-.151, 0.292)	0.049 (-.173, 0.272)	0.077 (-.143, 0.298)	0.082 (-.135, 0.299)
S_HDL_L	-0.007 (-0.231, 0.216)	-0.025 (-0.252, 0.201)	-.026 (-.257, 0.205)	-.048 (-.278, 0.183)	-.034 (-.264, 0.196)	-.029 (-.256, 0.198)

Table S33. Multivariable regression analyses of pesticide exposure in months with total lipid subclasses with standardised metabolomic biomarkers in women

Pesticide exposure month, β (95% CI), Females						
Total lipids	**Unadjusted**	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_L	0.206 (-0.053, 0.464)	0.186 (-0.064, 0.436)	0.183 (-.071, 0.437)	0.172 (-.084, 0.429)	0.178 (-.078, 0.435)	0.183 (-.074, 0.439)
XL_VLDL_L	0.038 (-0.237, 0.313)	0.018 (-0.249, 0.286)	0.0085 (-.263, 0.280)	-.014 (-.288, 0.260)	-.017 (-.291, 0.257)	-.014 (-.287, 0.259)
L_VLDL_L	0.119 (-0.153, 0.391)	0.107 (-0.156, 0.370)	0.113 (-.155, 0.380)	0.093 (-.178, 0.363)	0.094 (-.177, 0.365)	0.098 (-.173, 0.368)
M_VLDL_L	0.189 (-0.064, 0.443)	0.168 (-0.076, 0.412)	0.149 (-.098, 0.397)	0.132 (-.118, 0.382)	0.136 (-.114, 0.386)	0.141 (-.108, 0.391)
S_VLDL_L	0.209 (-0.061, 0.478)	0.194 (-0.066, 0.454)	0.155 (-.109, 0.419)	0.118 (-.147, 0.383)	0.123 (-.141, 0.388)	0.122 (-.143, 0.387)
XS_VLDL_L	0.258 (-0.015, 0.531)	0.249 (-0.019, 0.518)	0.185 (-.087, 0.458)	0.151 (-.123, 0.425)	0.164 (-.109, 0.437)	0.162 (-.111, 0.435)
IDL_L	0.229 (-0.045, 0.502)	0.222 (-0.051, 0.494)	0.147 (-.129, 0.422)	0.109 (-.168, 0.385)	0.122 (-.154, 0.397)	0.120 (-.155, 0.395)
L_LDL_L	0.227 (-0.051, 0.506)	0.218 (-0.059, 0.496)	0.143 (-.137, 0.424)	0.105 (-.177, 0.386)	0.116 (-.164, 0.397)	0.114 (-.166, 0.394)
M_LDL_L	0.242 (-0.042, 0.525)	0.231 (-0.051, 0.514)	0.161 (-.125, 0.446)	0.122 (-.163, 0.408)	0.132 (-.153, 0.417)	0.129 (-.155, 0.414)
S_LDL_L	0.249 (-0.029, 0.526)	0.240 (-0.036, 0.516)	0.175 (-.105, 0.454)	0.136 (-.144, 0.416)	0.144 (-.136, 0.423)	0.141 (-.138, 0.420)
XL_HDL_L	-0.016 (-0.263, 0.231)	0.021 (-0.223, 0.265)	-.00052 (-.249, 0.248)	-.039 (-.289, 0.212)	-.040 (-.290, 0.209)	-.046 (-.293, 0.201)
L_HDL_L	-0.269 (-0.513, -0.027)	-0.233 (-0.470, 0.004)	-.262 (-.502, -.021)	-.301 (-.544, -.058)	-.313 (-.556, -.071)	-.313 (-.556, -.070)
M_HDL_L	-0.308 (-0.587, -0.029)	-0.303 (-0.584, -0.022)	-.331 (-.616, -.046)	-.352 (-.640, -.064)	-.376 (-.663, -.088)	-.370 (-.656, -.085)
S_HDL_L	-0.247 (-0.544, 0.051)	-0.249 (-0.549, 0.051)	-.303 (-.606, 0.0013)	-.332 (-.637, -.027)	-.353 (-.659, -.047)	-.353 (-.656, -.050)

Table S34. Multivariable regression analyses of pesticide exposure in months with total cholesterol subclasses with standardised metabolomic biomarkers in men

Pesticide exposure month, β (95% CI), Males						
Total cholesterol	**Unadjusted**	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_C	0.084 (-0.134, 0.302)	0.125 (-0.089, 0.339)	0.110 (-.109, 0.329)	0.117 (-.104, 0.338)	0.115 (-.109, 0.338)	0.115 (-.108, 0.338)
XL_VLDL_C	0.039 (-0.186, 0.263)	0.079 (-0.141, 0.299)	0.050 (-.175, 0.275)	0.054 (-.173, 0.281)	0.051 (-.178, 0.281)	0.053 (-.177, 0.282)
L_VLDL_C	0.006 (-0.214, 0.227)	0.041 (-0.176, 0.257)	0.069 (-.152, 0.290)	0.069 (-.154, 0.291)	0.067 (-.158, 0.292)	0.067 (-.157, 0.292)
M_VLDL_C	0.042 (-0.177, 0.262)	0.082 (-0.130, 0.295)	0.081 (-.137, 0.299)	0.076 (-.145, 0.296)	0.073 (-.149, 0.295)	0.074 (-.148, 0.296)
S_VLDL_C	-0.004 (-0.207, 0.199)	0.029 (-0.169, 0.229)	0.0067 (-.198, 0.211)	-.002 (-.208, 0.204)	-.005 (-.213, 0.204)	-.003 (-.210, 0.204)
XS_VLDL_C	-0.047 (-0.270, 0.177)	-0.011 (-0.234, 0.212)	-.073 (-.301, 0.155)	-.086 (-.316, 0.143)	-.083 (-.314, 0.148)	-.082 (-.312, 0.148)
IDL_C	0.035 (-0.189, 0.259)	0.063 (-0.162, 0.289)	-.015 (-.246, 0.215)	-.031 (-.262, 0.201)	-.024 (-.257, 0.209)	-.021 (-.252, 0.210)
L_LDL_C	0.043 (-0.180, 0.266)	0.068 (-0.156, 0.293)	-.0059 (-.235, 0.224)	-.021 (-.252, 0.209)	-.019 (-.251, 0.213)	-.016 (-.246, 0.215)
M_LDL_C	0.023 (-0.195, 0.241)	0.043 (-0.176, 0.262)	-.021 (-.245, 0.203)	-.036 (-.261, 0.189)	-.036 (-.263, 0.190)	-.033 (-.258, 0.192)
S_LDL_C	0.019 (-0.199, 0.237)	0.036 (-0.183, 0.256)	-.027 (-.251, 0.198)	-.040 (-.266, 0.185)	-.039 (-.267, 0.188)	-.037 (-.263, 0.189)
LDL_C	0.030 (-0.187, 0.248)	0.053 (-0.166, 0.272)	-.016 (-.239, 0.208)	-.031 (-.255, 0.194)	-.029 (-.256, 0.197)	-.027 (-.251, 0.198)
XL_HDL_C	0.116 (-0.109, 0.342)	0.101 (-0.123, 0.325)	0.055 (-.175, 0.285)	0.077 (-.155, 0.309)	0.101 (-.134, 0.335)	0.099 (-.134, 0.332)
L_HDL_C	0.218 (-0.015, 0.450)	0.183 (-0.043, 0.409)	0.167 (-.064, 0.398)	0.158 (-.074, 0.391)	0.188 (-.046, 0.422)	0.191 (-.043, 0.424)
M_HDL_C	0.053 (-0.168, 0.273)	0.025 (-0.195, 0.246)	0.062 (-.164, 0.287)	0.040 (-.186, 0.267)	0.066 (-.159, 0.291)	0.071 (-.151, 0.293)
S_HDL_C	-0.052 (-0.285, 0.180)	-0.068 (-0.304, 0.168)	-.092 (-.333, 0.149)	-.113 (-.354, 0.123)	-.109 (-.352, 0.133)	-.105 (-.346, 0.135)
HDL_C_	0.113 (-0.098, 0.324)	0.081 (-0.126, 0.288)	0.072 (-.139, 0.284)	0.059 (-.154, 0.272)	0.089 (-.124, 0.301)	0.092 (-.120, 0.304)
Serum cholesterol	0.089 (-0.139, 0.319)	0.108 (-0.124, 0.339)	0.048 (-.189, 0.284)	0.031 (-.207, 0.268)	0.045 (-.194, 0.284)	0.049 (-.188, 0.286)
Remnant cholesterol	0.038 (-0.179, 0.255)	0.077 (-0.136, 0.290)	0.029 (-.189, 0.247)	0.017 (-.202, 0.237)	0.022 (-.200, 0.244)	0.024 (-.197, 0.245)

Table S35. Multivariable regression analyses of pesticide exposure in months with total cholesterol subclasses with standardised metabolomic biomarkers in women

Pesticide exposure month, β (95% CI), Females						
Total cholesterol	**Unadjusted**	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_C	0.225 (-0.049, 0.499)	0.209 (-0.059, 0.477)	0.195 (-.077, 0.466)	0.178 (-.096, 0.453)	0.191 (-.084, 0.465)	0.195 (-.079, 0.469)
XL_VLDL_C	0.042 (-0.238, 0.323)	0.024 (-0.249, 0.298)	0.0069 (-.268, 0.282)	-.013 (-.291, 0.266)	-.011 (-.289, 0.267)	-.0091 (-.287, 0.268)
L_VLDL_C	0.076 (-0.204, 0.355)	0.065 (-0.208, 0.337)	0.059 (-.218, 0.336)	0.037 (-.243, 0.317)	0.041 (-.239, 0.321)	0.043 (-.237, 0.323)
M_VLDL_C	0.234 (-0.024, 0.493)	0.214 (-0.036, 0.465)	0.179 (-.075, 0.433)	0.155 (-.102, 0.411)	0.164 (-.092, 0.421)	0.168 (-.088, 0.424)
S_VLDL_C	0.188 (-0.083, 0.459)	0.172 (-0.093, 0.436)	0.119 (-.149, 0.387)	0.082 (-.188, 0.351)	0.093 (-.175, 0.362)	0.091 (-.178, 0.359)
XS_VLDL_C	0.239 (-0.036, 0.514)	0.228 (-0.045, 0.501)	0.167 (-.110, 0.443)	0.146 (-.133, 0.425)	0.164 (-.113, 0.441)	0.161 (-.116, 0.438)
IDL_C	0.222 (-0.057, 0.500)	0.212 (-0.066, 0.491)	0.140 (-.142, 0.422)	0.108 (-.175, 0.391)	0.123 (-.159, 0.404)	0.122 (-.159, 0.403)
L_LDL_C	0.228 (-0.053, 0.509)	0.217 (-0.064, 0.498)	0.145 (-.139, 0.429)	0.111 (-.174, 0.396)	0.124 (-.159, 0.408)	0.123 (-.161, 0.406)
M_LDL_C	0.234 (-0.048, 0.516)	0.222 (-0.059, 0.504)	0.158 (-.126, 0.443)	0.126 (-.159, 0.412)	0.138 (-.146, 0.422)	0.137 (-.147, 0.419)
S_LDL_C	0.247 (-0.030, 0.524)	0.236 (-0.041, 0.513)	0.178 (-.103, 0.458)	0.146 (-.135, 0.427)	0.157 (-.123, 0.437)	0.155 (-.125, 0.435)
LDL_C	0.231 (-0.046, 0.509)	0.219 (-0.057, 0.497)	0.154 (-.127, 0.434)	0.121 (-.159, 0.402)	0.133 (-.147, 0.413)	0.131 (-.148, 0.411)
XL_HDL_C	0.043 (-0.214, 0.301)	0.073 (-0.184, 0.331)	0.052 (-.209, 0.314)	0.017 (-.248, 0.281)	0.017 (-.247, 0.282)	0.0089 (-.251, 0.269)
L_HDL_C	-0.241 (-0.468, -0.013)	-0.204 (-0.424, 0.017)	-.224 (-.448, -.00019)	-.258 (-.485, -.032)	-.269 (-.495, -.044)	-.270 (-.496, -.045)
M_HDL_C	-0.319 (-0.591, -0.047)	-0.315 (-0.588, -0.042)	-.332 (-.609, -.054)	-.339 (-.619, -.058)	-.362 (-.641, -.082)	-.356 (-.633, -.078)
S_HDL_C	-0.069 (-0.341, 0.203)	-0.074 (-0.347, 0.200)	-.133 (-.409, 0.143)	-.164 (-.441, 0.112)	-.176 (-.453, 0.102)	-.179 (-.454, 0.097)
HDL_C_	-0.247 (-0.505, 0.011)	-0.216 (-0.471, 0.038)	-.252 (-.511, 0.0059)	-.297 (-.558, -.036)	-.314 (-.575, -.054)	-.31 (-.576, -.054)
Serum cholesterol	0.135 (-0.151, 0.422)	0.136 (-0.151, 0.424)	0.061 (-.229, 0.352)	0.014 (-.278, 0.306)	0.018 (-.274, 0.310)	0.017 (-.276, 0.309)
Remnant cholesterol	0.243 (-0.025, 0.511)	0.228 (-0.035, 0.492)	0.166 (-.100, 0.433)	0.135 (-.133, 0.403)	0.150 (-.117, 0.417)	0.149 (-.117, 0.417)

Table S36. Multivariable regression analyses of pesticide exposure in months (PEM) with apolipoproteins, aminoacids, sphingomyelins, glucose metabolism, fatty acids, inflammation, and fluid balance with standardised metabolomic biomarkers in men

Pesticide exposure month, β (95% CI), Males						
	Unadjusted	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
Apolipoproteins						
Apolipoprotein A1 [g/L]	0.139 (-0.069, 0.346)	0.121 (-0.088, 0.329)	0.116 (-.097, 0.329)	0.097 (-.117, 0.310)	0.125 (-.089, 0.338)	0.129 (-.082, 0.340)
Apolipoprotein B [g/L]	0.053 (-0.165, 0.271)	0.089 (-0.125, 0.304)	0.047 (-.172, 0.266)	0.033 (-.187, 0.254)	0.038 (-.185, 0.261)	0.041 (-.181, 0.263)
Ratio of Apo B/Apo A1	-0.041 (-0.247, 0.165)	0.006 (-0.191, 0.203)	-.032 (-.234, 0.169)	-.032 (-.235, 0.172)	-.046 (-.250, 0.159)	-.046 (-.250, 0.158)
Amino acids						
Alanine [µmol/L]	-0.065 (-0.289, 0.159)	-0.055 (-0.279, 0.169)	0.033 (-.197, 0.262)	0.0025 (-.228, 0.232)	0.002 (-.229, 0.234)	0.0046 (-.226, 0.235)
Glutamine [µmol/L]	-0.097 (-0.332, 0.137)	-0.102 (-0.338, 0.134)	-.159 (-.402, 0.082)	-.051 (-.290, 0.189)	-.050 (-.291, 0.190)	-.048 (-.287, 0.192)
Glycine [µmol/L]	-0.009 (-0.199, 0.183)	0.003 (-0.190, 0.196)	0.022 (-.175, 0.219)	-.015 (-.213, 0.183)	-.044 (-.243, 0.155)	-.043 (-.238, 0.151)
Histidine [µmol/L]	0.064 (-0.183, 0.312)	0.059 (-0.189, 0.309)	0.079 (-.176, 0.335)	0.137 (-.120, 0.394)	0.135 (-.123, 0.393)	0.133 (-.124, 0.391)
Branched-chain amino acids						
Isoleucine [µmol/L]	-0.012 (-0.219, 0.196)	0.013 (-0.191, 0.217)	0.047 (-.161, 0.256)	0.025 (-.185, 0.235)	0.029 (-.182, 0.242)	0.033 (-.178, 0.244)
Leucine [µmol/L]	0.021 (-0.183, 0.224)	0.016 (-0.185, 0.217)	0.060 (-.145, 0.265)	0.035 (-.171, 0.242)	0.043 (-.166, 0.252)	0.046 (-.160, 0.253)
Valine [µmol/L]	-0.002 (-0.199, 0.196)	-0.007 (-0.205, 0.190)	0.034 (-.168, 0.235)	0.017 (-.186, 0.219)	0.012 (-.192, 0.217)	0.016 (-.187, 0.219)
Aromatic amino acids						
Phenylalanine [µmol/L]	0.096 (-0.117, 0.309)	0.101 (-0.107, 0.309)	0.074 (-.139, 0.287)	0.055 (-.158, 0.267)	0.032 (-.181, 0.245)	0.035 (-.172, 0.243)
Tyrosine [µmol/L]	-0.257 (-0.475, -0.039)	-.233 (-0.450, -0.016)	-.201 (-.423, 0.021)	-.121 (-.343, 0.101)	-.119 (-.344, 0.105)	-.117 (-.341, 0.107)
Ketone bodies						
Acetoacetate [µmol/L]	0.039 (-0.181, 0.259)	0.006 (-0.216, 0.228)	-.029 (-.257, 0.197)	-.032 (-.261, 0.197)	-.020 (-.249, 0.209)	-.018 (-.248, 0.211)
Acetate [µmol/L]	0.092 (-0.131, 0.315)	0.112 (-0.113, 0.337)	0.156 (-.074, 0.386)	0.130 (-.101, 0.361)	0.139 (-.094, 0.373)	0.141 (-.092, 0.374)

beta-hydroxybutyrate [µmol/L]	0.098 (-0.115, 0.311)	0.057 (-0.158, 0.272)	0.023 (-.196, 0.242)	0.021 (-.199, 0.241)	0.036 (-.184, 0.256)	0.038 (-.181, 0.256)
Sphingolipids						
Sphingomyelin	0.113 (-0.118, 0.343)	0.113 (-0.120, 0.347)	0.071 (-.168, 0.309)	0.052 (-.186, 0.291)	0.067 (-.173, 0.308)	0.073 (-.165, 0.311)
Total choline	0.106 (-0.108, 0.319)	0.110 (-0.106, 0.327)	0.082 (-.139, 0.304)	0.068 (-.154, 0.291)	0.093 (-.129, 0.316)	0.098 (-.123, 0.319)
Glycolysis related metabolites						
Citrate [µmol/L]	0.037 (-0.194, 0.267)	0.019 (-0.214, 0.252)	0.016 (-.223, 0.254)	0.0033 (-.235, 0.242)	-.002 (-.242, 0.238)	0.0014 (-.237, 0.239)
Glucose [mmol/L]	0.027 (-0.197, 0.252)	0.033 (-0.195, 0.259)	0.0084 (-.224, 0.240)	-.019 (-.251, 0.212)	0.0054 (-.228, 0.238)	0.0093 (-.222, 0.241)
Glycerol [mmol/L]	-0.210 (-0.444, 0.023)	-0.205 (-0.441, 0.032)	-.237 (-.478, 0.0048)	-.207 (-.449, 0.036)	-.224 (-.469, 0.021)	-.224 (-.468, 0.020)
Lactate [mmol/L]	-0.279 (-0.502, -0.056)	-0.276 (-0.501, -0.050)	-.202 (-.432, 0.028)	-.222 (-.453, 0.010)	-.222 (-.455, 0.011)	-.217 (-.446, 0.012)
Pyruvate [mmol/L]	0.077 (-0.151, 0.304)	0.087 (-0.143, 0.318)	0.028 (-.206, 0.263)	0.049 (-.186, 0.285)	0.047 (-.191, 0.285)	0.045 (-.193, 0.282)
Fatty acids						
Total fatty acids [mmol/L]	0.071 (-0.152, 0.294)	0.085 (-0.137, 0.308)	0.076 (-.151, 0.304)	0.063 (-.166, 0.292)	0.082 (-.148, 0.312)	0.086 (-.143, 0.315)
Monounsaturated fatty acids [mmol/L]	0.032 (-0.188, 0.251)	0.044 (-0.174, 0.261)	0.054 (-.168, 0.277)	0.041 (-.183, 0.265)	0.059 (-.165, 0.283)	0.062 (-.161, 0.285)
Saturated fatty acids [mmol/L]	0.112 (-0.109, 0.332)	0.126 (-0.094, 0.346)	0.080 (-.145, 0.305)	0.067 (-.159, 0.293)	0.079 (-.148, 0.306)	0.084 (-.142, 0.309)
Inflammation						
Alpha-1-acid glycoprotein [mmol/L]	-0.024 (-0.254, 0.206)	-0.025 (-0.253, 0.203)	-.0025 (-.234, 0.231)	-.037 (-.270, 0.197)	-.046 (-.282, 0.190)	-.042 (-.276, 0.192)
Fluid balance						
Creatinine [µmol/L]	-0.240 (-0.537, 0.056)	-0.246 (-0.545, 0.053)	-.187 (-.493, 0.119)	-.113 (-.419, 0.194)	-.117 (-.427, 0.194)	-.119 (-.429, 0.192)
Albumin [standardized concentration units]	0.070 (-0.179, 0.319)	0.068 (-0.185, 0.320)	0.052 (-.207, 0.311)	0.024 (-.236, 0.284)	0.028 (-.234, 0.291)	0.033 (-.226, 0.293)

Table S37. Multivariable regression analyses of pesticide exposure in months (PEM) with apolipoproteins, aminoacids, sphingomyelins, glucose metabolism, fatty acids, inflammation, and fluid balance with standardised metabolomic biomarkers in women

Pesticide exposure month, β (95% CI), Females						
	Unadjusted	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
Apolipoproteins						
Apolipoprotein A1 [g/L]	-0.229 (-0.513, 0.056)	-0.204 (-0.489, 0.080)	-.256 (-.545, 0.033)	-.308 (-.599, -.017)	-.324 (-.615, -.032)	-.323 (-.614, -.031)
Apolipoprotein B [g/L]	0.259 (-0.007, 0.524)	0.245 (-0.015, 0.505)	0.183 (-.081, 0.446)	0.149 (-.115, 0.414)	0.162 (-.102, 0.425)	0.162 (-.102, 0.426)
Ratio of Apo B/Apo A1	0.399 (0.143, 0.654)	0.368 (0.123, 0.614)	0.344 (0.095, 0.593)	0.346 (0.094, 0.597)	0.368 (0.119, 0.617)	0.367 (0.118, 0.616)
Amino acids						
Alanine [µmol/L]	0.110 (-0.165, 0.386)	0.130 (-0.145, 0.405)	0.156 (-.123, 0.436)	0.125 (-.156, 0.406)	0.116 (-.167, 0.398)	0.112 (-.169, 0.394)
Glutamine [µmol/L]	-0.198 (-0.466, 0.069)	-0.175 (-0.445, 0.096)	-.196 (-.471, 0.079)	-.189 (-.465, 0.088)	-.179 (-.456, 0.099)	-.174 (-.447, 0.099)
Glycine [µmol/L]	-0.205 (-0.525, 0.115)	-0.207 (-0.529, 0.116)	-.276 (-.602, 0.051)	-.269 (-.597, 0.059)	-.261 (-.591, 0.068)	-.267 (-.594, 0.059)
Histidine [µmol/L]	0.005 (-0.269, 0.279)	0.009 (-0.266, 0.286)	0.049 (-.229, 0.328)	0.042 (-.241, 0.324)	0.037 (-.247, 0.320)	0.040 (-.243, 0.323)
Branched-chain amino acids						
Isoleucine [µmol/L]	0.077 (-0.172, 0.326)	0.067 (-0.176, 0.309)	0.064 (-.183, 0.311)	0.081 (-.168, 0.331)	0.082 (-.168, 0.332)	0.084 (-.165, 0.333)
Leucine [µmol/L]	0.013 (-0.238, 0.263)	-0.009 (-0.255, 0.237)	-.0088 (-.258, 0.241)	-.0091 (-.260, 0.242)	-.017 (-.268, 0.235)	-.020 (-.270, 0.230)
Valine [µmol/L]	-0.089 (-0.351, 0.173)	-0.108 (-0.367, 0.151)	-.107 (-.369, 0.156)	-.089 (-.354, 0.174)	-.094 (-.359, 0.172)	-.094 (-.357, 0.168)
Aromatic amino acids						
Phenylalanine [µmol/L]	0.311 (0.031, 0.592)	0.292 (0.017, 0.567)	0.249 (-.029, 0.528)	0.220 (-.058, 0.499)	0.216 (-.062, 0.495)	0.206 (-.068, 0.481)
Tyrosine [µmol/L]	0.172 (-0.096, 0.441)	0.152 (-0.116, 0.419)	0.165 (-.106, 0.437)	0.169 (-.106, 0.443)	0.154 (-.120, 0.429)	0.159 (-.112, 0.431)
Ketone bodies						
Acetoacetate [µmol/L]	-0.066 (-0.352, 0.219)	-0.056 (-0.345, 0.233)	-.100 (-.394, 0.194)	-.123 (-.420, 0.174)	-.139 (-.436, 0.156)	-.139 (-.434, 0.156)

Acetate [µmol/L]	-0.018 (-0.291, 0.254)	-.023 (-0.298, 0.253)	-.022 (-.299, 0.256)	-.035 (-.315, 0.245)	-.037 (-.318, 0.243)	-.039 (-.318, 0.241)
beta-hydroxybutyrate [µmol/L]	-0.007 (-0.310, 0.296)	0.027 (-0.279, 0.333)	-.031 (-.339, 0.278)	-.065 (-.377, 0.246)	-.074 (-.385, 0.236)	-.081 (-.390, 0.229)
Sphingolipids						
Sphingomyelin	0.006 (-0.284, 0.296)	0.014 (-0.277, 0.306)	-.066 (-.361, 0.229)	-.123 (-.419, 0.173)	-.123 (-.421, 0.174)	-.123 (-.420, 0.174)
Total choline	-0.026 (-0.314, 0.262)	-0.015 (-0.305, 0.275)	-.085 (-.378, 0.209)	-.140 (-.436, 0.155)	-.149 (-.446, 0.148)	-.148 (-.445, 0.148)
Glycolysis related metabolites						
Citrate [µmol/L]	0.298 (0.023, 0.573)	0.334 (0.056, 0.612)	0.314 (0.032, 0.596)	0.278 (-.0068, 0.563)	0.297 (0.013, 0.581)	0.298 (0.016, 0.579)
Glucose [mmol/L]	-0.210 (-0.499, 0.079)	-0.209 (-0.501, 0.083)	-.254 (-.549, 0.041)	-.242 (-.536, 0.053)	-.246 (-.542, 0.051)	-.241 (-.535, 0.053)
Glycerol [mmol/L]	0.168 (-0.114, 0.449)	0.164 (-0.119, 0.448)	0.168 (-.120, 0.457)	0.169 (-.122, 0.461)	0.173 (-.119, 0.466)	0.183 (-.108, 0.474)
Lactate [mmol/L]	0.119 (-0.159, 0.396)	0.109 (-0.168, 0.388)	0.149 (-.133, 0.432)	0.141 (-.144, 0.427)	0.132 (-.154, 0.418)	0.123 (-.156, 0.403)
Pyruvate [mmol/L]	0.074 (-0.203, 0.349)	0.073 (-0.205, 0.350)	0.065 (-.218, 0.347)	0.057 (-.227, 0.342)	0.066 (-.219, 0.352)	0.070 (-.215, 0.355)
Fatty acids						
Total fatty acids [mmol/L]	0.089 (-0.195, 0.372)	0.092 (-0.190, 0.375)	0.029 (-.257, 0.316)	-.023 (-.311, 0.265)	-.029 (-.318, 0.259)	-.029 (-.318, 0.260)
Monounsaturated fatty acids [mmol/L]	0.157 (-0.116, 0.429)	0.154 (-0.115, 0.424)	0.101 (-.173, 0.374)	0.049 (-.226, 0.324)	0.035 (-.239, 0.311)	0.036 (-.239, 0.311)
Saturated fatty acids [mmol/L]	0.088 (-0.199, 0.374)	0.095 (-0.191, 0.382)	0.021 (-.269, 0.311)	-.032 (-.323, 0.260)	-.035 (-.327, 0.258)	-.034 (-.327, 0.258)
Inflammation						
Alpha-1-acid glycoprotein [mmol/L]	-0.057 (-0.331, 0.217)	-0.069 (-0.338, 0.199)	-.107 (-.379, 0.165)	-.139 (-.412, 0.132)	-.140 (-.413, 0.132)	-.140 (-.411, 0.131)
Fluid balance						
Creatinine [µmol/L]	-0.033 (-0.214, 0.147)	-0.029 (-0.211, 0.154)	-.015 (-.200, 0.171)	-.023 (-.209, 0.164)	-.025 (-.212, 0.163)	-.023 (-.210, 0.164)
Albumin [standardized concentration units]	-0.224 (-0.481, 0.033)	-0.215 (-0.474, 0.044)	-.255 (-.517, 0.0082)	-.251 (-.512, 0.011)	-.256 (-.519, 0.0068)	-.258 (-.518, 0.0021)

Pesticide exposure in years

Table S38. Multivariable regression analyses of pesticide exposure in years with total lipoprotein subclasses with standardised metabolomic biomarkers in men

Pesticide exposure years, β (95% CI), Males						
Total lipoprotein	**Unadjusted**	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_P	0.037 (-0.167, 0.240)	0.025 (-0.171, 0.221)	-.003 (-.211, 0.204)	0.001 (-.207, 0.209)	-.003 (-.214, 0.207)	-.005 (-.216, 0.206)
XL_VLDL_P	-0.025 (-0.226, 0.176)	-0.034 (-0.229, 0.161)	-.051 (-.257, 0.154)	-.049 (-.255, 0.157)	-.044 (-.253, 0.165)	-.045 (-.254, 0.164)
L_VLDL_P	-0.103 (-0.298, 0.092)	-0.107 (-0.296, 0.081)	-.092 (-.292, 0.108)	-.096 (-.296, 0.104)	-.082 (-.285, 0.119)	-.079 (-.282, 0.124)
M_VLDL_P	-0.039 (-0.231, 0.153)	-0.049 (-0.233, 0.136)	-.036 (-.231, 0.159)	-.037 (-.233, 0.159)	-.032 (-.230, 0.166)	-.034 (-.233, 0.165)
S_VLDL_P	-0.039 (-0.219, 0.141)	-0.049 (-0.222, 0.124)	-.047 (-.231, 0.136)	-.053 (-.237, 0.131)	-.052 (-.239, 0.134)	-.069 (-.256, 0.117)
XS_VLDL_P	0.0004 (-0.191, 0.191)	-0.009 (-0.194, 0.177)	-.057 (-.254, 0.139)	-.067 (-.264, 0.129)	-.071 (-.271, 0.129)	-.104 (-.302, 0.095)
IDL_P	-0.052 (-0.240, 0.137)	-0.053 (-0.241, 0.136)	-.032 (-.233, 0.168)	-.022 (-.223, 0.179)	-.049 (-.253, 0.155)	-.038 (-.242, 0.167)
L_LDL_P	0.038 (-0.160, 0.236)	0.031 (-0.165, 0.228)	-.058 (-.266, 0.149)	-.074 (-.282, 0.133)	-.068 (-.278, 0.142)	-.103 (-.311, 0.106)
M_LDL_P	0.018 (-0.178, 0.214)	0.011 (-0.183, 0.204)	-.071 (-.276, 0.134)	-.088 (-.293, 0.116)	-.078 (-.285, 0.129)	-.112 (-.317, 0.093)
S_LDL_P	-0.001 (-0.198, 0.195)	-0.008 (-0.203, 0.186)	-.091 (-.297, 0.115)	-.108 (-.313, 0.097)	-.095 (-.303, 0.112)	-.128 (-.335, 0.078)
XL_HDL_P	0.019 (-0.175, 0.215)	0.030 (-0.159, 0.220)	-.022 (-.223, 0.179)	-.019 (-.221, 0.182)	-.030 (-.235, 0.174)	-.040 (-.245, 0.164)
L_HDL_P	-0.061 (-0.256, 0.134)	-0.045 (-0.233, 0.143)	-.101 (-.302, 0.099)	-.111 (-.311, 0.089)	-.106 (-.307, 0.096)	-.114 (-.315, 0.087)
M_HDL_P	-0.124 (-0.317, 0.069)	-0.119 (-0.311, 0.073)	-.129 (-.332, 0.074)	-.143 (-.346, 0.059)	-.119 (-.321, 0.083)	-.117 (-.316, 0.083)
S_HDL_P	-0.055 (-0.250, 0.141)	-0.056 (-0.252, 0.140)	-.107 (-.314, 0.099)	-.128 (-.334, 0.077)	-.098 (-.304, 0.107)	-.118 (-.321, 0.085)

Table S39. Multivariable regression analyses of pesticide exposure in years with total lipoprotein subclasses with standardised metabolomic biomarkers in women

Pesticide exposure years, β (95% CI), Females						
Total lipoprotein	**Unadjusted**	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_P	0.119 (-0.246, 0.485)	0.094 (-0.255, 0.444)	0.068 (-.284, 0.419)	0.075 (-.277, 0.427)	0.097 (-.263, 0.456)	0.109 (-.249, 0.469)
XL_VLDL_P	0.124 (-0.278, 0.525)	0.106 (-0.280, 0.493)	0.061 (-.328, 0.451)	0.056 (-.334, 0.445)	0.094 (-.305, 0.493)	0.126 (-.272, 0.524)
L_VLDL_P	-0.147 (-0.514, 0.220)	-0.149 (-0.499, 0.203)	-.164 (-.518, 0.189)	-.168 (-.521, 0.186)	-.051 (-.420, 0.319)	-.024 (-.393, 0.345)
M_VLDL_P	0.086 (-0.266, 0.438)	0.072 (-0.264, 0.408)	0.041 (-.297, 0.379)	0.036 (-.301, 0.373)	0.138 (-.213, 0.489)	0.164 (-.186, 0.515)
S_VLDL_P	0.241 (-0.133, 0.615)	0.227 (-0.129, 0.584)	0.181 (-.178, 0.540)	0.170 (-.187, 0.528)	0.267 (-.105, 0.638)	0.264 (-.108, 0.635)
XS_VLDL_P	0.357 (-0.030, 0.744)	0.348 (-0.028, 0.725)	0.274 (-.104, 0.652)	0.260 (-.116, 0.636)	0.333 (-.057, 0.724)	0.322 (-.068, 0.713)
IDL_P	-0.066 (-0.509, 0.376)	-0.056 (-0.498, 0.385)	-.059 (-.505, 0.386)	-.050 (-.496, 0.396)	-.097 (-.560, 0.367)	-.093 (-.557, 0.370)
L_LDL_P	0.339 (-0.049, 0.728)	0.337 (-0.047, 0.720)	0.243 (-.141, 0.627)	0.220 (-.160, 0.601)	0.316 (-.079, 0.711)	0.307 (-.088, 0.702)
M_LDL_P	0.341 (-0.047, 0.730)	0.338 (-0.045, 0.722)	0.250 (-.133, 0.634)	0.226 (-.154, 0.606)	0.350 (-.044, 0.745)	0.340 (-.054, 0.735)
S_LDL_P	0.341 (-0.050, 0.731)	0.337 (-0.047, 0.723)	0.254 (-.132, 0.639)	0.231 (-.152, 0.613)	0.362 (-.0355, 0.759)	0.352 (-.046, 0.749)
XL_HDL_P	0.134 (-0.207, 0.475)	0.149 (-0.184, 0.483)	0.133 (-.203, 0.468)	0.142 (-.194, 0.477)	0.067 (-.282, 0.416)	0.038 (-.307, 0.383)
L_HDL_P	0.016 (-0.325, 0.357)	0.035 (-0.295, 0.364)	0.016 (-.315, 0.348)	0.014 (-.318, 0.346)	-.062 (-.406, 0.283)	-.060 (-.406, 0.285)
M_HDL_P	-0.079 (-0.473, 0.314)	-0.072 (-0.464, 0.321)	-.088 (-.483, 0.307)	-.106 (-.501, 0.289)	-.129 (-.539, 0.282)	-.099 (-.507, 0.309)
S_HDL_P	-0.054 (-0.464, 0.356)	-0.054 (-0.464, 0.356)	-.108 (-.519, 0.303)	-.137 (-.546, 0.272)	-.110 (-.537, 0.316)	-.108 (-.531, 0.315)

Table S40. Multivariable regression analyses of pesticide exposure in years with triglyceride subclasses with standardised metabolomic biomarkers in men

Pesticide exposure years, β (95% CI), Males						
Triglycerides	**Unadjusted**	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_TG	0.034 (-0.167, 0.234)	0.021 (-0.172, 0.215)	-.009 (-.214, 0.195)	-.005 (-.209, 0.199)	-.008 (-.216, 0.199)	-.009 (-.217, 0.198)
XL_VLDL_TG	-0.029 (-0.224, 0.165)	-0.037 (-.226, 0.152)	-.047 (-.247, 0.152)	-.047 (-.246, 0.153)	-.036 (-.239, 0.166)	-.034 (-.236, 0.169)
L_VLDL_TG	-0.141 (-0.333, 0.050)	-0.145 (-0.330, 0.040)	-.125 (-.321, 0.072)	-.129 (-.325, 0.068)	-.111 (-.309, 0.088)	-.105 (-.304, 0.094)
M_VLDL_TG	-0.062 (-0.246, 0.123)	-0.070 (-0.248, 0.107)	-.050 (-.238, 0.138)	-.050 (-.239, 0.137)	-.043 (-.233, 0.148)	-.040 (-.231, 0.151)
S_VLDL_TG	-0.064 (-0.239, 0.112)	-0.073 (-0.241, 0.096)	-.057 (-.235, 0.122)	-.059 (-.239, 0.119)	-.056 (-.237, 0.126)	-.065 (-.247, 0.117)
XS_VLDL_TG	-0.055 (-0.234, 0.125)	-0.064 (-0.236, 0.109)	-.076 (-.259, 0.107)	-.086 (-.269, 0.097)	-.081 (-.266, 0.105)	-.107 (-.292, 0.077)
VLDL_TG	-0.053 (-0.242, 0.137)	-0.062 (-0.244, 0.119)	-.051 (-.244, 0.141)	-.053 (-.246, 0.140)	-.046 (-.241, 0.149)	-.048 (-.244, 0.148)
IDL_TG	-0.015 (-0.201, 0.169)	-0.024 (-0.204, 0.156)	-.072 (-.263, 0.118)	-.088 (-.278, 0.102)	-.083 (-.275, 0.109)	-.124 (-.314, 0.067)
L_LDL_TG	0.037 (-0.151, 0.226)	0.029 (-0.154, 0.213)	-.041 (-.236, 0.153)	-.059 (-.253, 0.134)	-.054 (-.251, 0.142)	-.101 (-.295, 0.092)
M_LDL_TG	0.055 (-0.134, 0.244)	0.047 (-0.138, 0.233)	-.022 (-.218, 0.175)	-.041 (-.236, 0.154)	-.033 (-.231, 0.164)	-.079 (-.274, 0.116)
S_LDL_TG	0.022 (-0.166, 0.209)	0.013 (-0.169, 0.195)	-.039 (-.232, 0.154)	-.054 (-.247, 0.138)	-.045 (-.239, 0.150)	-.081 (-.274, 0.113)
LDL_TG	0.042 (-0.146, 0.231)	0.034 (-0.150, 0.218)	-.033 (-.228, 0.162)	-.052 (-.246, 0.142)	-.044 (-.241, 0.152)	-.089 (-.283, 0.105)
XL_HDL_TG	0.161 (-0.037, 0.358)	0.155 (-0.042, 0.352)	0.083 (-.125, 0.291)	0.081 (-.128, 0.289)	0.075 (-.136, 0.286)	0.041 (-.169, 0.250)
L_HDL_TG	0.105 (-0.094, 0.304)	0.108 (-0.091, 0.307)	0.055 (-.157, 0.267)	0.037 (-.174, 0.248)	0.035 (-.178, 0.249)	0.00019 (-.211, 0.212)
M_HDL_TG	0.048 (-0.146, 0.242)	0.042 (-0.148, 0.231)	0.041 (-.159, 0.242)	0.036 (-.165, 0.238)	0.035 (-.169, 0.239)	0.019 (-.184, 0.223)
S_HDL_TG	0.088 (-0.088, 0.264)	0.079 (-0.089, 0.247)	0.034 (-.144, 0.212)	0.026 (-.152, 0.204)	0.029 (-.151, 0.209)	-.001 (-.180, 0.178)
HDL_TG	0.087 (-0.105, 0.279)	0.081 (-0.108, 0.270)	0.034 (-.166, 0.235)	0.022 (-.178, 0.222)	0.022 (-.180, 0.225)	-.011 (-.212, 0.190)
Serum_TG	-0.038 (-0.235, 0.159)	-0.048 (-0.237, 0.140)	-.054 (-.254, 0.146)	-.061 (-.261, 0.139)	-.053 (-.256, 0.150)	-.067 (-.269, 0.137)

Table S41. Multivariable regression analyses of pesticide exposure in years with triglyceride subclasses with standardised metabolomic biomarkers in women

Pesticide exposure years, β (95% CI), Females						
Triglycerides	**Unadjusted**	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_TG	0.103 (-0.261, 0.467)	0.078 (-0.269, 0.426)	0.054 (-.297, 0.404)	0.062 (-.289, 0.412)	0.088 (-.270, 0.446)	0.100 (-.258, 0.458)
XL_VLDL_TG	0.124 (-0.286, 0.534)	0.107 (-0.290, 0.505)	0.072 (-.328, 0.472)	0.064 (-.336, 0.463)	0.099 (-.309, 0.508)	0.133 (-.275, 0.541)
L_VLDL_TG	-0.184 (-0.554, 0.186)	-0.186 (-0.542, 0.169)	-.197 (-.556, 0.161)	-.203 (-.561, 0.155)	-.088 (-.463, 0.287)	-.055 (-.429, 0.319)
M_VLDL_TG	0.031 (-0.336, 0.398)	0.017 (-0.335, 0.369)	-.0023 (-.356, 0.352)	-.0048 (-.358, 0.348)	0.118 (-.250, 0.486)	0.149 (-.218, 0.517)
S_VLDL_TG	0.228 (-0.169, 0.625)	0.214 (-0.168, 0.596)	0.185 (-.199, 0.569)	0.182 (-.201, 0.565)	0.272 (-.127, 0.671)	0.273 (-.126, 0.672)
XS_VLDL_TG	0.377 (-0.027, 0.781)	0.365 (-0.025, 0.754)	0.314 (-.078, 0.706)	0.305 (-.085, 0.695)	0.348 (-.058, 0.754)	0.335 (-.071, 0.740)
VLDL_TG	0.139 (-0.229, 0.507)	0.124 (-0.227, 0.475)	0.099 (-.254, 0.452)	0.097 (-.256, 0.449)	0.183 (-.184, 0.549)	0.205 (-.161, 0.572)
IDL_TG	0.499 (0.092, 0.905)	0.492 (0.095, 0.889)	0.426 (0.027, 0.825)	0.415 (0.019, 0.812)	0.415 (0.002, 0.827)	0.388 (-.024, 0.800)
L_LDL_TG	0.514 (0.102, 0.926)	0.510 (0.105, 0.915)	0.437 (0.031, 0.842)	0.426 (0.022, 0.829)	0.411 (-.0091, 0.831)	0.379 (-.040, 0.799)
M_LDL_TG	0.515 (0.110, 0.919)	0.511 (0.112, 0.909)	0.454 (0.054, 0.855)	0.444 (0.046, 0.842)	0.439 (0.025, 0.854)	0.407 (-.0066, 0.821)
S_LDL_TG	0.469 (0.065, 0.875)	0.463 (0.066, 0.859)	0.412 (0.014, 0.810)	0.401 (0.005, 0.798)	0.418 (0.0057, 0.829)	0.393 (-.019, 0.805)
LDL_TG	0.515 (0.106, 0.923)	0.510 (0.109, 0.911)	0.442 (0.039, 0.844)	0.431 (0.031, 0.831)	0.424 (0.0078, 0.839)	0.393 (-.023, 0.808)
XL_HDL_TG	0.197 (-0.199, 0.593)	0.205 (-0.190, 0.599)	0.128 (-.269, 0.524)	0.128 (-.268, 0.524)	0.026 (-.386, 0.438)	0.019 (-.392, 0.432)
L_HDL_TG	0.092 (-0.295, 0.479)	0.103 (-0.282, 0.488)	0.027 (-.360, 0.413)	0.0097 (-.375, 0.395)	-.093 (-.495, 0.309)	-.111 (-.512, 0.290)
M_HDL_TG	0.252 (-0.137, 0.641)	0.244 (-0.139, 0.628)	0.193 (-.193, 0.578)	0.180 (-.204, 0.565)	0.147 (-.255, 0.549)	0.154 (-.248, 0.556)
S_HDL_TG	0.417 (-0.00041, 0.834)	0.406 (-0.00043, 0.813)	0.346 (-.063, 0.754)	0.338 (-.069, 0.746)	0.319 (-.107, 0.744)	0.282 (-.142, 0.707)
HDL_TG	0.279 (-0.130, 0.688)	0.278 (-0.128, 0.685)	0.197 (-.211, 0.604)	0.181 (-.224, 0.586)	0.098 (-.326, 0.521)	0.083 (-.340, 0.506)
Serum_TG	0.271 (-0.094, 0.635)	0.258 (-0.091, 0.607)	0.214 (-.136, 0.566)	0.207 (-.142, 0.557)	0.241 (-.123, 0.605)	0.249 (-.116, 0.613)

Table S42. Multivariable regression analyses of pesticide exposure in years with phospholipid subclasses with standardised metabolomic biomarkers in men

Pesticide exposure years, β (95% CI), Males						
Phospholipids	**Unadjusted**	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_PL	-0.009 (-0.203, 0.185)	-0.019 (-0.208, 0.169)	-.039 (-.239, 0.160)	-.037 (-.237, 0.163)	-.036 (-.239, 0.166)	-.037 (-.241, 0.166)
XL_VLDL_PL	0.006 (-0.193, 0.204)	-0.003 (-0.196, 0.190)	-.025 (-.229, 0.179)	-.022 (-.227, 0.182)	-.021 (-.229, 0.187)	-.027 (-.235, 0.180)
L_VLDL_PL	-0.072 (-0.266, 0.121)	-0.077 (-0.264, 0.110)	-.066 (-.265, 0.132)	-.071 (-.269, 0.127)	-.059 (-.259, 0.142)	-.058 (-.259, 0.143)
M_VLDL_PL	-0.028 (-0.223, 0.167)	-0.038 (-0.225, 0.149)	-.032 (-.231, 0.166)	-.035 (-.234, 0.164)	-.031 (-.233, 0.171)	-.037 (-.239, 0.165)
S_VLDL_PL	-0.049 (-0.233, 0.133)	-0.059 (-0.235, 0.117)	-.056 (-.243, 0.130)	-.063 (-.250, 0.124)	-.062 (-.251, 0.128)	-.079 (-.269, 0.109)
XS_VLDL_PL	-0.007 (-0.205, 0.189)	-0.015 (-0.209, 0.179)	-.071 (-.277, 0.135)	-.085 (-.290, 0.121)	-.084 (-.292, 0.124)	-.116 (-.323, 0.091)
IDL_PL	0.056 (-0.149, 0.261)	0.050 (-0.153, 0.254)	-.041 (-.256, 0.175)	-.056 (-.271, 0.159)	-.054 (-.271, 0.164)	-.088 (-.304, 0.128)
L_LDL_PL	0.037 (-0.164, 0.238)	0.031 (-0.168, 0.229)	-.061 (-.272, 0.149)	-.077 (-.287, 0.133)	-.070 (-.283, 0.142)	-.103 (-.314, 0.109)
M_LDL_PL	0.022 (-0.181, 0.225)	0.014 (-0.185, 0.214)	-.082 (-.294, 0.129)	-.100 (-.311, 0.110)	-.089 (-.303, 0.124)	-.125 (-.336, 0.087)
S_LDL_PL	0.006 (-0.193, 0.205)	-0.002 (-0.198, 0.195)	-.101 (-.308, 0.107)	-.117 (-.324, 0.090)	-.102 (-.312, 0.107)	-.136 (-.344, 0.072)
XL_HDL_PL	0.062 (-0.151, 0.275)	0.074 (-0.129, 0.277)	0.069 (-.147, 0.284)	0.071 (-.145, 0.287)	0.061 (-.156, 0.279)	0.058 (-.159, 0.276)
L_HDL_PL	-0.085 (-0.282, 0.113)	-0.069 (-0.260, 0.122)	-.118 (-.321, 0.086)	-.128 (-.331, 0.075)	-.120 (-.325, 0.085)	-.125 (-.329, 0.079)
M_HDL_PL	-0.117 (-0.310, 0.075)	-0.113 (-0.305, 0.079)	-.132 (-.336, 0.071)	-.147 (-.349, 0.056)	-.121 (-.323, 0.080)	-.120 (-.319, 0.079)
S_HDL_PL	-0.092 (-0.279, 0.095)	-0.089 (-0.277, 0.098)	-.114 (-.312, 0.083)	-.127 (-.325, 0.070)	-.102 (-.298, 0.094)	-.104 (-.298, 0.090)

Table S43. Multivariable regression analyses of pesticide exposure in years with phospholipid subclasses with standardised metabolomic biomarkers in women

Pesticide exposure years, β (95% CI), Females						
Phospholipids	**Unadjusted**	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_PL	0.131 (-0.245, 0.507)	0.110 (-0.254, 0.474)	0.103 (-.265, 0.470)	0.107 (-.261, 0.475)	0.114 (-.262, 0.490)	0.141 (-.236, 0.517)
XL_VLDL_PL	0.099 (-0.314, 0.513)	0.083 (-0.317, 0.484)	0.027 (-.375, 0.429)	0.020 (-.382, 0.422)	0.039 (-.374, 0.453)	0.066 (-.347, 0.479)
L_VLDL_PL	-0.082 (-0.451, 0.286)	-0.084 (-0.437, 0.269)	-.105 (-.461, 0.250)	-.111 (-.467, 0.244)	-.011 (-.382, 0.360)	0.012 (-.359, 0.383)
M_VLDL_PL	0.132 (-0.226, 0.489)	0.118 (-0.223, 0.459)	0.077 (-.266, 0.421)	0.070 (-.272, 0.412)	0.161 (-.195, 0.518)	0.183 (-.173, 0.539)
S_VLDL_PL	0.309 (-0.084, 0.703)	0.296 (-0.082, 0.674)	0.254 (-.127, 0.634)	0.243 (-.135, 0.621)	0.323 (-.071, 0.716)	0.315 (-.079, 0.709)
XS_VLDL_PL	0.366 (-0.025, 0.756)	0.360 (-0.023, 0.744)	0.282 (-.102, 0.667)	0.264 (-.119, 0.646)	0.338 (-.059, 0.735)	0.334 (-.063, 0.731)
IDL_PL	0.331 (-0.061, 0.723)	0.329 (-0.059, 0.717)	0.233 (-.155, 0.621)	0.211 (-.174, 0.597)	0.276 (-.123, 0.676)	0.272 (-.128, 0.671)
L_LDL_PL	0.282 (-0.102, 0.666)	0.280 (-0.099, 0.659)	0.185 (-.195, 0.565)	0.161 (-.216, 0.538)	0.251 (-.140, 0.643)	0.248 (-.143, 0.639)
M_LDL_PL	0.314 (-0.076, 0.703)	0.309 (-0.073, 0.693)	0.208 (-.175, 0.591)	0.183 (-.196, 0.563)	0.288 (-.108, 0.683)	0.276 (-.119, 0.671)
S_LDL_PL	0.336 (-0.051, 0.723)	0.334 (-0.048, 0.715)	0.239 (-.143, 0.621)	0.218 (-.162, 0.597)	0.322 (-.074, 0.718)	0.312 (-.084, 0.708)
XL_HDL_PL	0.101 (-0.179, 0.383)	0.116 (-0.156, 0.388)	0.107 (-.166, 0.381)	0.114 (-.160, 0.387)	0.052 (-.232, 0.336)	0.038 (-.245, 0.321)
L_HDL_PL	0.017 (-0.326, 0.361)	0.036 (-0.298, 0.369)	0.022 (-.313, 0.357)	0.019 (-.317, 0.354)	-.049 (-.398, 0.299)	-.042 (-.391, 0.307)
M_HDL_PL	-0.046 (-0.445, 0.354)	-0.037 (-0.436, 0.362)	-.056 (-.457, 0.345)	-.073 (-.474, 0.328)	-.103 (-.519, 0.314)	-.075 (-.490, 0.339)
S_HDL_PL	-0.445 (-0.844, -0.045)	-0.443 (-0.844, -0.043)	-.444 (-.846, -.041)	-.465 (-.867, -.063)	-.507 (-.925, -.089)	-.488 (-.903, -.073)

Table S44. Multivariable regression analyses of pesticide exposure in years with cholesterol esters subclasses with standardised metabolomic biomarkers in men

Pesticide exposure years, β (95% CI), Males						
Cholesterol esters	**Unadjusted**	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_CE	0.114 (-0.072, 0.301)	0.104 (-0.077, 0.285)	0.113 (-.079, 0.305)	0.118 (-.073, 0.310)	0.107 (-.088, 0.301)	0.099 (-.095, 0.295)
XL_VLDL_CE	0.028 (-0.163, 0.218)	0.019 (-0.167, 0.204)	0.0035 (-.192, 0.199)	0.0098 (-.186, 0.206)	0.0019 (-.197, 0.201)	-.004 (-.204, 0.195)
L_VLDL_CE	-0.032 (-0.225, 0.160)	-0.037 (-0.225, 0.151)	0.0015 (-.198, 0.201)	0.0016 (-.196, 0.199)	-.0046 (-.205, 0.196)	-.007 (-.208, 0.194)
M_VLDL_CE	0.045 (-0.153, 0.243)	0.035 (-0.156, 0.226)	0.029 (-.174, 0.231)	0.029 (-.174, 0.232)	0.020 (-.186, 0.226)	0.005 (-.201, 0.211)
S_VLDL_CE	0.049 (-0.136, 0.234)	0.041 (-0.139, 0.221)	0.0096 (-.181, 0.201)	0.0027 (-.189, 0.194)	-.007 (-.201, 0.187)	-.033 (-.227, 0.159)
XS_VLDL_CE	0.089 (-0.107, 0.285)	0.082 (-0.111, 0.274)	0.017 (-.187, 0.221)	0.015 (-.189, 0.219)	-.002 (-.208, 0.204)	-.028 (-.234, 0.177)
IDL_CE	0.064 (-0.133, 0.260)	0.057 (-0.137, 0.252)	-.035 (-.241, 0.171)	-.047 (-.253, 0.158)	-.047 (-.255, 0.160)	-.078 (-.284, 0.129)
L_LDL_CE	0.035 (-0.163, 0.232)	0.028 (-0.167, 0.224)	-.058 (-.265, 0.149)	-.073 (-.279, 0.134)	-.066 (-.275, 0.143)	-.097 (-.305, 0.111)
M_LDL_CE	0.0093 (-0.186, 0.205)	0.0036 (-0.191, 0.198)	-.069 (-.275, 0.137)	-.084 (-.290, 0.121)	-.075 (-.284, 0.133)	-.103 (-.310, 0.105)
S_LDL_CE	-0.007 (-0.209, 0.195)	-0.012 (-0.213, 0.189)	-.087 (-.300, 0.126)	-.102 (-.315, 0.111)	-.092 (-.308, 0.124)	-.118 (-.333, 0.097)
XL_HDL_CE	0.006 (-0.196, 0.208)	0.010 (-0.189, 0.209)	-.062 (-.273, 0.149)	-.055 (-.267, 0.156)	-.065 (-.279, 0.149)	-.082 (-.296, 0.132)
L_HDL_CE	-0.035 (-0.237, 0.166)	-0.018 (-0.212, 0.175)	-.076 (-.282, 0.131)	-.082 (-.288, 0.124)	-.079 (-.288, 0.129)	-.086 (-.294, 0.122)
M_HDL_CE	-0.123 (-0.319, 0.073)	-0.116 (-0.310, 0.078)	-.111 (-.316, 0.094)	-.122 (-.327, 0.083)	-.098 (-.302, 0.107)	-.087 (-.289, 0.115)
S_HDL_CE	-0.0005 (-0.218, 0.217)	-0.002 (-0.219, 0.216)	-.057 (-.288, 0.175)	-.078 (-.308, 0.152)	-.053 (-.286, 0.181)	-.080 (-.313, 0.152)
EstC	-0.020 (-0.219, 0.179)	-0.025 (-0.224, 0.174)	-.107 (-.317, 0.104)	-.123 (-.332, 0.087)	-.115 (-.328, 0.097)	-.147 (-.358, 0.064)

Table S45. Multivariable regression analyses of pesticide exposure in years with cholesterol esters subclasses with standardised metabolomic biomarkers in women

Pesticide exposure years, β (95% CI), Females						
Cholesterol esters	**Unadjusted**	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_CE	0.207 (-0.198, 0.613)	0.185 (-0.209, 0.579)	0.141 (-.256, 0.538)	0.151 (-.247, 0.548)	0.154 (-.252, 0.559)	0.159 (-.246, 0.564)
XL_VLDL_CE	0.196 (-0.236, 0.627)	0.179 (-0.241, 0.599)	0.131 (-.291, 0.552)	0.131 (-.289, 0.551)	0.172 (-.257, 0.601)	0.185 (-.243, 0.612)
L_VLDL_CE	-0.016 (-0.403, 0.371)	-0.017 (-0.393, 0.358)	-.044 (-.422, 0.335)	-.038 (-.416, 0.341)	0.069 (-.325, 0.464)	0.063 (-.332, 0.458)
M_VLDL_CE	0.229 (-0.137, 0.594)	0.217 (-0.136, 0.569)	0.156 (-.198, 0.510)	0.149 (-.204, 0.504)	0.211 (-.158, 0.579)	0.225 (-.144, 0.593)
S_VLDL_CE	0.214 (-0.169, 0.596)	0.202 (-0.168, 0.573)	0.131 (-.241, 0.503)	0.113 (-.257, 0.482)	0.225 (-.158, 0.608)	0.213 (-.170, 0.596)
XS_VLDL_CE	0.249 (-0.125, 0.624)	0.241 (-0.127, 0.609)	0.174 (-.195, 0.544)	0.165 (-.204, 0.535)	0.236 (-.145, 0.618)	0.224 (-.158, 0.606)
IDL_CE	0.265 (-0.117, 0.647)	0.261 (-0.116, 0.639)	0.170 (-.208, 0.548)	0.149 (-.226, 0.526)	0.221 (-.168, 0.611)	0.218 (-.172, 0.608)
L_LDL_CE	0.294 (-0.099, 0.687)	0.291 (-0.098, 0.679)	0.201 (-.188, 0.591)	0.178 (-.208, 0.564)	0.308 (-.092, 0.708)	0.304 (-.097, 0.704)
M_LDL_CE	0.264 (-0.127, 0.656)	0.262 (-0.126, 0.649)	0.187 (-.201, 0.576)	0.162 (-.224, 0.547)	0.343 (-.056, 0.741)	0.340 (-.058, 0.739)
S_LDL_CE	0.251 (-0.131, 0.633)	0.249 (-0.129, 0.627)	0.182 (-.197, 0.562)	0.158 (-.219, 0.534)	0.335 (-.055, 0.725)	0.332 (-.058, 0.722)
XL_HDL_CE	0.140 (-0.231, 0.512)	0.150 (-0.219, 0.520)	0.134 (-.238, 0.506)	0.142 (-.230, 0.514)	0.089 (-.299, 0.478)	0.038 (-.343, 0.418)
L_HDL_CE	-0.0025 (-0.318, 0.313)	0.016 (-0.287, 0.318)	0.0063 (-.299, 0.311)	0.0069 (-.298, 0.312)	-.064 (-.380, 0.253)	-.066 (-.383, 0.251)
M_HDL_CE	-0.181 (-0.564, 0.203)	-0.173 (-0.555, 0.207)	-.172 (-.556, 0.212)	-.187 (-.571, 0.197)	-.195 (-.594, 0.204)	-.162 (-.559, 0.234)
S_HDL_CE	0.150 (-0.204, 0.505)	0.151 (-0.203, 0.504)	0.083 (-.271, 0.436)	0.052 (-.297, 0.402)	0.173 (-.193, 0.538)	0.161 (-.202, 0.524)
EstC	0.278 (-0.109, 0.665)	0.279 (-0.106, 0.663)	0.192 (-.193, 0.577)	0.169 (-.213, 0.552)	0.237 (-.162, 0.636)	0.231 (-.168, 0.631)

Table S46. Multivariable regression analyses of pesticide exposure in years with free cholesterol subclasses with standardised metabolomic biomarkers in men

Pesticide exposure years, β (95% CI), Males						
Free cholesterol	**Unadjusted**	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_FC	0.053 (-0.142, 0.247)	0.042 (-0.147, 0.231)	0.016 (-.184, 0.216)	0.019 (-.180, 0.220)	0.019 (-.184, 0.222)	0.013 (-.191, 0.216)
XL_VLDL_FC	0.019 (-0.179, 0.216)	0.0095 (-0.182, 0.201)	-.020 (-.223, 0.182)	-.019 (-.221, 0.184)	-.022 (-.228, 0.184)	-.033 (-.239, 0.173)
L_VLDL_FC	-0.048 (-0.236, 0.139)	-0.052 (-0.234, 0.130)	-.035 (-.228, 0.159)	-.038 (-.231, 0.156)	-.029 (-.226, 0.167)	-.029 (-.227, 0.167)
M_VLDL_FC	-0.016 (-0.207, 0.175)	-0.025 (-0.209, 0.158)	-.015 (-.209, 0.179)	-.017 (-.212, 0.179)	-.012 (-.210, 0.1856)	-.018 (-.216, 0.180)
S_VLDL_FC	-0.031 (-0.209, 0.148)	-0.039 (-0.212, 0.134)	-.046 (-.229, 0.138)	-.054 (-.238, 0.129)	-.052 (-.239, 0.134)	-.073 (-.259, 0.113)
XS_VLDL_FC	-0.0046 (-0.201, 0.192)	-0.011 (-0.205, 0.183)	-.059 (-.266, 0.147)	-.070 (-.276, 0.136)	-.072 (-.280, 0.137)	-.104 (-.312, 0.104)
IDL_FC	0.046 (-0.162, 0.254)	0.042 (-0.166, 0.249)	-.044 (-.264, 0.175)	-.058 (-.277, 0.161)	-.057 (-.278, 0.165)	-.089 (-.309, 0.131)
L_LDL_FC	0.059 (-0.145, 0.263)	0.054 (-0.149, 0.258)	-.043 (-.259, 0.172)	-.059 (-.273, 0.156)	-.053 (-.270, 0.164)	-.087 (-.303, 0.129)
M_LDL_FC	0.037 (-0.159, 0.233)	0.031 (-0.164, 0.226)	-.071 (-.277, 0.135)	-.088 (-.293, 0.118)	-.078 (-.286, 0.129)	-.115 (-.321, 0.091)
S_LDL_FC	0.028 (-0.172, 0.228)	0.022 (-0.177, 0.220)	-.084 (-.294, 0.126)	-.099 (-.309, 0.110)	-.088 (-.299, 0.124)	-.126 (-.336, 0.085)
XL_HDL_FC	0.040 (-0.173, 0.254)	0.045 (-0.162, 0.252)	-.016 (-.235, 0.204)	-.0087 (-.228, 0.211)	-.019 (-.242, 0.204)	-.017 (-.240, 0.206)
L_HDL_FC	-0.044 (-0.255, 0.166)	-0.026 (-0.227, 0.176)	-.074 (-.289, 0.139)	-.079 (-.294, 0.135)	-.076 (-.293, 0.141)	-.083 (-.300, 0.134)
M_HDL_FC	-0.130 (-0.332, 0.072)	-0.124 (-0.324, 0.076)	-.137 (-.349, 0.075)	-.153 (-.364, 0.059)	-.128 (-.339, 0.083)	-.126 (-.335, 0.083)
S_HDL_FC	-0.057 (-0.257, 0.143)	-0.056 (-0.256, 0.144)	-.107 (-.319, 0.104)	-.126 (-.337, 0.084)	-.101 (-.311, 0.109)	-.119 (-.328, 0.089)
Free cholesterol	0.00021 (-0.202, 0.202)	-0.004 (-0.206, 0.198)	-.097 (-.311, 0.116)	-.112 (-.325, 0.101)	-.105 (-.319, 0.111)	-.137 (-.351, 0.077)

Table S47. Multivariable regression analyses of pesticide exposure in years with free cholesterol subclasses with standardised metabolomic biomarkers in women

Pesticide exposure years, β (95% CI), Females						
Free cholesterol	**Unadjusted**	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_FC	0.164 (-0.218, 0.545)	0.142 (-0.227, 0.511)	0.113 (-.259, 0.486)	0.118 (-.254, 0.491)	0.108 (-.273, 0.489)	0.132 (-.249, 0.513)
XL_VLDL_FC	0.144 (-0.266, 0.554)	0.128 (-0.269, 0.526)	0.064 (-.332, 0.459)	0.058 (-.337, 0.454)	0.079 (-.327, 0.487)	0.097 (-.310, 0.504)
L_VLDL_FC	-0.068 (-.454, 0.318)	-0.069 (-0.442, 0.303)	-.088 (-.464, 0.287)	-.096 (-.471, 0.279)	-.016 (-.407, 0.376)	0.009 (-.383, 0.401)
M_VLDL_FC	0.153 (-0.216, 0.521)	0.139 (-0.213, 0.492)	0.100 (-.255, 0.455)	0.092 (-.263, 0.446)	0.163 (-.206, 0.531)	0.186 (-.183, 0.554)
S_VLDL_FC	0.288 (-0.101, 0.677)	0.276 (-0.098, 0.651)	0.224 (-.153, 0.600)	0.209 (-.166, 0.583)	0.294 (-.095, 0.683)	0.286 (-.103, 0.676)
XS_VLDL_FC	0.332 (-0.050, 0.714)	0.327 (-0.049, 0.703)	0.256 (-.122, 0.633)	0.239 (-.137, 0.615)	0.318 (-.0728, 0.708)	0.309 (-.082, 0.699)
IDL_FC	0.323 (-0.062, 0.708)	0.323 (-0.059, 0.705)	0.234 (-.149, 0.617)	0.214 (-.167, 0.595)	0.281 (-.114, 0.676)	0.278 (-.117, 0.672)
L_LDL_FC	0.314 (-0.068, 0.696)	0.313 (-0.066, 0.693)	0.219 (-.160, 0.598)	0.197 (-.179, 0.573)	0.286 (-.105, 0.676)	0.276 (-.114, 0.667)
M_LDL_FC	0.309 (-0.069, 0.689)	0.308 (-0.067, 0.683)	0.208 (-.167, 0.582)	0.184 (-.187, 0.556)	0.292 (-.094, 0.678)	0.274 (-.112, 0.659)
S_LDL_FC	0.322 (-0.066, 0.709)	0.319 (-0.063, 0.702)	0.221 (-.162, 0.603)	0.198 (-.182, 0.578)	0.319 (-.077, 0.715)	0.295 (-.100, 0.691)
XL_HDL_FC	0.145 (-0.193, 0.482)	0.159 (-0.172, 0.490)	0.141 (-.193, 0.475)	0.152 (-.182, 0.485)	0.091 (-.256, 0.439)	0.074 (-.270, 0.419)
L_HDL_FC	0.070 (-0.234, 0.375)	0.089 (-0.201, 0.379)	0.085 (-.208, 0.377)	0.087 (-.206, 0.379)	0.033 (-.270, 0.337)	0.033 (-.271, 0.337)
M_HDL_FC	-0.022 (-0.401, 0.356)	-0.013 (-0.389, 0.364)	-.032 (-.411, 0.347)	-.049 (-.428, 0.330)	-.064 (-.458, 0.330)	-.039 (-.431, 0.354)
S_HDL_FC	-0.349 (-0.767, 0.068)	-0.345 (-0.762, 0.073)	-.381 (-.801, 0.038)	-.407 (-.825, 0.010)	-.444 (-.880, -.0084)	-.442 (-.876, -.0087)
Free cholesterol	0.332 (-0.067, 0.730)	0.333 (-0.063, 0.728)	0.236 (-.159, 0.633)	0.219 (-.176, 0.613)	0.263 (-.148, 0.674)	0.262 (-.149, 0.673)

Table S48. Multivariable regression analyses of pesticide exposure in years with total lipid subclasses with standardised metabolomic biomarkers in men

Pesticide exposure years, β (95% CI), Males						
Total lipids	**Unadjusted**	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_L	0.039 (-0.164, 0.241)	0.026 (-0.168, 0.221)	-.00062 (-.207, 0.206)	0.0036 (-.203, 0.209)	-.00059 (-.209, 0.209)	-.0033 (-.213, 0.206)
XL_VLDL_L	-0.021 (-0.223, 0.179)	-0.030 (-0.225, 0.164)	-.049 (-.255, 0.156)	-.047 (-.253, 0.159)	-.043 (-.252, 0.166)	-.046 (-.255, 0.164)
L_VLDL_L	-0.097 (-0.291, 0.097)	-0.101 (-0.288, 0.086)	-.087 (-.285, 0.112)	-.089 (-.288, 0.108)	-.078 (-.279, 0.123)	-.075 (-.276, 0.126)
M_VLDL_L	-0.034 (-0.226, 0.159)	-0.043 (-0.228, 0.142)	-.032 (-.228, 0.165)	-.033 (-.229, 0.164)	-.029 (-.228, 0.171)	-.032 (-.231, 0.168)
S_VLDL_L	-0.034 (-0.214, 0.147)	-0.043 (-0.216, 0.129)	-.044 (-.228, 0.139)	-.051 (-.235, 0.133)	-.051 (-.237, 0.136)	-.069 (-.255, 0.118)
XS_VLDL_L	0.007 (-0.182, 0.196)	-0.001 (-0.186, 0.183)	-.052 (-.248, 0.144)	-.062 (-.258, 0.134)	-.066 (-.265, 0.132)	-.098 (-.295, 0.099)
IDL_L	0.054 (-0.143, 0.251)	0.048 (-0.148, 0.243)	-.039 (-.247, 0.167)	-.054 (-.260, 0.153)	-.052 (-.261, 0.157)	-.086 (-.293, 0.122)
L_LDL_L	0.039 (-0.159, 0.239)	0.033 (-0.163, 0.230)	-.056 (-.265, 0.152)	-.072 (-.280, 0.135)	-.066 (-.276, 0.144)	-.100 (-.309, 0.109)
M_LDL_L	0.018 (-0.181, 0.217)	0.011 (-0.186, 0.208)	-.073 (-.282, 0.135)	-.090 (-.298, 0.117)	-.079 (-.290, 0.130)	-.114 (-.323, 0.095)
S_LDL_L	0.00095 (-0.194, 0.196)	-0.0058 (-0.199, 0.187)	-.089 (-.294, 0.115)	-.106 (-.309, 0.098)	-.093 (-.299, 0.113)	-.125 (-.330, 0.079)
XL_HDL_L	0.020 (-0.178, 0.219)	0.030 (-0.163, 0.223)	-.024 (-.228, 0.181)	-.021 (-.226, 0.184)	-.031 (-.239, 0.176)	-.041 (-.249, 0.167)
L_HDL_L	-0.061 (-0.258, 0.135)	-0.045 (-0.234, 0.144)	-.100 (-.302, 0.101)	-.109 (-.311, 0.092)	-.105 (-.308, 0.098)	-.112 (-.315, 0.090)
M_HDL_L	-0.125 (-0.317, 0.067)	-0.119 (-0.311, 0.071)	-.129 (-.332, 0.073)	-.143 (-.345, 0.059)	-.119 (-.319, 0.082)	-.115 (-.314, 0.083)
S_HDL_L	-0.055 (-0.254, 0.145)	-0.055 (-0.255, 0.144)	-.108 (-.318, 0.103)	-.129 (-.339, 0.079)	-.099 (-.308, 0.111)	-.119 (-.326, 0.088)

Table S49. Multivariable regression analyses of pesticide exposure in years with total lipid subclasses with standardised metabolomic biomarkers in women

Pesticide exposure years, β (95% CI), Females						
Total lipids	**Unadjusted**	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_L	0.122 (-0.242, 0.486)	0.098 (-0.250, 0.446)	0.070 (-.280, 0.421)	0.077 (-.273, 0.428)	0.096 (-.262, 0.455)	0.109 (-.249, 0.468)
XL_VLDL_L	0.126 (-0.274, 0.526)	0.109 (-0.276, 0.494)	0.061 (-.327, 0.449)	0.056 (-.332, 0.444)	0.094 (-.304, 0.491)	0.124 (-.273, 0.521)
L_VLDL_L	-0.138 (-0.501, 0.225)	-0.139 (-0.488, 0.208)	-.157 (-.507, 0.194)	-.159 (-.510, 0.190)	-.046 (-.411, 0.319)	-.021 (-.387, 0.345)
M_VLDL_L	0.100 (-0.252, 0.453)	0.087 (-0.249, 0.423)	0.052 (-.286, 0.391)	0.047 (-.290, 0.385)	0.144 (-.207, 0.496)	0.169 (-.181, 0.521)
S_VLDL_L	0.245 (-0.129, 0.620)	0.232 (-0.126, 0.589)	0.183 (-.177, 0.544)	0.171 (-.187, 0.529)	0.268 (-.104, 0.641)	0.264 (-.109, 0.637)
XS_VLDL_L	0.346 (-0.034, 0.727)	0.338 (-0.033, 0.709)	0.264 (-.108, 0.636)	0.251 (-.120, 0.621)	0.324 (-.060, 0.709)	0.314 (-.071, 0.699)
IDL_L	0.328 (-0.053, 0.709)	0.325 (-0.051, 0.701)	0.233 (-.144, 0.609)	0.213 (-.161, 0.587)	0.274 (-.114, 0.662)	0.267 (-.121, 0.655)
L_LDL_L	0.328 (-0.060, 0.716)	0.325 (-0.058, 0.708)	0.231 (-.152, 0.615)	0.209 (-.172, 0.589)	0.308 (-.087, 0.703)	0.300 (-.095, 0.695)
M_LDL_L	0.336 (-0.059, 0.731)	0.333 (-0.056, 0.722)	0.243 (-.147, 0.633)	0.218 (-.168, 0.605)	0.349 (-.052, 0.749)	0.339 (-.061, 0.739)
S_LDL_L	0.331 (-0.056, 0.717)	0.328 (-0.053, 0.709)	0.245 (-.137, 0.626)	0.222 (-.157, 0.599)	0.354 (-.039, 0.747)	0.344 (-.049, 0.737)
XL_HDL_L	0.137 (-0.207, 0.481)	0.153 (-0.184, 0.489)	0.136 (-.203, 0.475)	0.145 (-.194, 0.484)	0.071 (-.281, 0.424)	0.042 (-.307, 0.390)
L_HDL_L	0.019 (-0.320, 0.358)	0.038 (-0.289, 0.365)	0.021 (-.308, 0.349)	0.019 (-.310, 0.349)	-.055 (-.397, 0.288)	-.054 (-.396, 0.289)
M_HDL_L	-0.084 (-0.472, 0.304)	-0.076 (-0.464, 0.311)	-.091 (-.481, 0.298)	-.109 (-.499, 0.281)	-.130 (-.535, 0.275)	-.100 (-.503, 0.303)
S_HDL_L	-0.063 (-0.477, 0.351)	-0.063 (-0.477, 0.352)	-.117 (-.533, 0.298)	-.148 (-.561, 0.265)	-.118 (-.549, 0.313)	-.116 (-.543, 0.312)

Table S50. Multivariable regression analyses of pesticide exposure in years with total cholesterol subclasses with standardised metabolomic biomarkers in men

Pesticide exposure years, β (95% CI), Males						
Total cholesterol	**Unadjusted**	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_C	0.089 (-0.105, 0.282)	0.078 (-0.110, 0.265)	0.067 (-.132, 0.265)	0.072 (-.127, 0.271)	0.063 (-.139, 0.265)	0.056 (-.147, 0.258)
XL_VLDL_C	0.016 (-0.181, 0.213)	0.0069 (-0.184, 0.198)	-.018 (-.219, 0.184)	-.014 (-.215, 0.188)	-.019 (-.224, 0.186)	-.028 (-.234, 0.177)
L_VLDL_C	-0.056 (-0.249, 0.136)	-0.061 (-0.248, 0.126)	-.030 (-.228, 0.168)	-.031 (-.229, 0.167)	-.031 (-.232, 0.169)	-.034 (-.235, 0.167)
M_VLDL_C	0.015 (-0.180, 0.211)	0.0053 (-0.182, 0.193)	0.0062 (-.193, 0.205)	0.0053 (-.194, 0.205)	0.0019 (-.201, 0.204)	-.0089 (-.212, 0.194)
S_VLDL_C	0.019 (-0.161, 0.201)	0.011 (-0.165, 0.187)	-.011 (-.198, 0.175)	-.019 (-.206, 0.168)	-.025 (-.214, 0.164)	-.049 (-.239, 0.139)
XS_VLDL_C	0.059 (-0.140, 0.258)	0.052 (-0.144, 0.248)	-.0095 (-.217, 0.198)	-.015 (-.223, 0.193)	-.027 (-.238, 0.183)	-.057 (-.266, 0.153)
IDL_C	0.057 (-0.143, 0.258)	0.051 (-0.147, 0.250)	-.040 (-.251, 0.169)	-.053 (-.264, 0.157)	-.053 (-.265, 0.159)	-.084 (-.296, 0.127)
L_LDL_C	0.041 (-0.159, 0.240)	0.034 (-0.164, 0.232)	-.055 (-.265, 0.155)	-.070 (-.279, 0.139)	-.064 (-.276, 0.148)	-.096 (-.306, 0.115)
M_LDL_C	0.014 (-0.181, 0.209)	0.0083 (-0.185, 0.202)	-.071 (-.276, 0.134)	-.086 (-.291, 0.118)	-.077 (-.284, 0.130)	-.107 (-.313, 0.099)
S_LDL_C	-0.00064 (-0.196, 0.194)	-0.0062 (-0.200, 0.188)	-.086 (-.292, 0.119)	-.101 (-.306, 0.104)	-.090 (-.298, 0.118)	-.119 (-.325, 0.088)
LDL_C	0.024 (-0.171, 0.219)	0.018 (-0.175, 0.211)	-.066 (-.270, 0.139)	-.081 (-.285, 0.124)	-.072 (-.279, 0.134)	-.103 (-.308, 0.103)
XL_HDL_C	0.013 (-0.189, 0.216)	0.018 (-0.181, 0.216)	-.054 (-.265, 0.157)	-.047 (-.259, 0.164)	-.058 (-.272, 0.157)	-.069 (-.284, 0.144)
L_HDL_C	-0.037 (-0.240, 0.166)	-0.019 (-0.214, 0.175)	-.075 (-.283, 0.132)	-.081 (-.289, 0.126)	-.079 (-.288, 0.131)	-.085 (-.295, 0.124)
M_HDL_C	-0.127 (-0.324, 0.069)	-0.120 (-0.315, 0.074)	-.118 (-.324, 0.087)	-.131 (-.336, 0.075)	-.106 (-.311, 0.099)	-.097 (-.299, 0.106)
S_HDL_C	-0.016 (-0.223, 0.192)	-0.017 (-0.224, 0.191)	-.074 (-.294, 0.146)	-.098 (-.317, 0.121)	-.069 (-.290, 0.151)	-.097 (-.316, 0.123)
HDL_C_	-0.059 (-0.248, 0.129)	-0.050 (-0.233, 0.133)	-.096 (-.290, 0.098)	-.109 (-.302, 0.084)	-.097 (-.291, 0.098)	-.106 (-.299, 0.088)
Serum C	0.00072 (-0.204, 0.206)	-0.004 (-0.208, 0.200)	-.090 (-.306, 0.126)	-.107 (-.322, 0.109)	-.099 (-.317, 0.119)	-.132 (-.348, 0.085)
Remnant C	0.032 (-0.162, 0.225)	0.022 (-0.166, 0.210)	-.035 (-.234, 0.164)	-.044 (-.243, 0.155)	-.048 (-.250, 0.154)	-.075 (-.276, 0.126)

Table S51. Multivariable regression analyses of pesticide exposure in years with total cholesterol subclasses with standardised metabolomic biomarkers in women

Pesticide exposure years, β (95% CI), Females						
Total cholesterol	**Unadjusted**	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_C	0.185 (-0.201, 0.571)	0.162 (-0.210, 0.535)	0.121 (-.254, 0.497)	0.129 (-.247, 0.504)	0.127 (-.257, 0.510)	0.139 (-.244, 0.523)
XL_VLDL_C	0.166 (-0.242, 0.574)	0.149 (-0.245, 0.543)	0.090 (-.304, 0.484)	0.087 (-.306, 0.481)	0.121 (-.282, 0.524)	0.137 (-.266, 0.539)
L_VLDL_C	-0.079 (-0.453, 0.295)	-0.081 (-0.441, 0.279)	-.106 (-.469, 0.256)	-.106 (-.469, 0.257)	0.0046 (-.374, 0.383)	0.014 (-.365, 0.393)
M_VLDL_C	0.194 (-0.166, 0.554)	0.181 (-0.164, 0.527)	0.128 (-.219, 0.476)	0.122 (-.225, 0.468)	0.189 (-.172, 0.549)	0.206 (-.155, 0.567)
S_VLDL_C	0.238 (-0.140, 0.617)	0.226 (-0.138, 0.591)	0.161 (-.206, 0.527)	0.144 (-.221, 0.508)	0.248 (-.130, 0.626)	0.237 (-.141, 0.616)
XS_VLDL_C	0.289 (-0.094, 0.672)	0.281 (-0.095, 0.658)	0.209 (-.169, 0.587)	0.198 (-.179, 0.575)	0.275 (-.116, 0.665)	0.263 (-.128, 0.654)
IDL_C	0.288 (-0.100, 0.676)	0.285 (-0.099, 0.669)	0.193 (-.192, 0.578)	0.173 (-.210, 0.555)	0.244 (-.153, 0.641)	0.241 (-.156, 0.638)
L_LDL_C	0.299 (-0.092, 0.692)	0.297 (-0.091, 0.685)	0.206 (-.183, 0.594)	0.183 (-.203, 0.568)	0.302 (-.098, 0.701)	0.296 (-.103, 0.696)
M_LDL_C	0.293 (-0.099, 0.686)	0.291 (-0.098, 0.679)	0.208 (-.181, 0.597)	0.183 (-.203, 0.569)	0.339 (-.060, 0.739)	0.334 (-.066, 0.733)
S_LDL_C	0.284 (-0.102, 0.670)	0.281 (-0.101, 0.664)	0.205 (-.178, 0.589)	0.181 (-.199, 0.562)	0.341 (-.054, 0.735)	0.333 (-.062, 0.727)
LDL_C	0.295 (-0.092, 0.681)	0.292 (-0.090, 0.674)	0.207 (-.176, 0.589)	0.183 (-.197, 0.563)	0.319 (-.075, 0.713)	0.313 (-.081, 0.707)
XL_HDL_C	0.141 (-0.217, 0.500)	0.153 (-0.202, 0.509)	0.136 (-.222, 0.493)	0.145 (-.213, 0.502)	0.088 (-.285, 0.461)	0.045 (-.321, 0.411)
L_HDL_C	0.016 (-0.301, 0.334)	0.035 (-0.269, 0.339)	0.026 (-.279, 0.332)	0.027 (-.279, 0.334)	-.041 (-.359, 0.277)	-.043 (-.361, 0.276)
M_HDL_C	-0.145 (-0.524, 0.234)	-0.137 (-0.514, 0.240)	-.140 (-.519, 0.239)	-.156 (-.536, 0.224)	-.165 (-.559, 0.229)	-.134 (-.526, 0.258)
S_HDL_C	0.107 (-0.272, 0.485)	0.108 (-0.269, 0.485)	0.036 (-.342, 0.413)	0.0038 (-.370, 0.378)	0.100 (-.291, 0.491)	0.090 (-.298, 0.479)
HDL_C_	0.016 (-0.343, 0.376)	0.033 (-0.319, 0.384)	0.0046 (-.349, 0.358)	-.004 (-.358, 0.349)	-.045 (-.413, 0.323)	-.045 (-.414, 0.323)
Serum C	0.301 (-0.098, 0.701)	0.303 (-0.094, 0.699)	0.209 (-.188, 0.607)	0.188 (-.207, 0.582)	0.254 (-.158, 0.665)	0.249 (-.163, 0.661)
Remnant C	0.274 (-0.099, 0.647)	0.265 (-0.099, 0.628)	0.183 (-.181, 0.548)	0.168 (-.195, 0.530)	0.253 (-.123, 0.629)	0.252 (-.124, 0.629)

Table S52. Multivariable regression analyses of pesticide exposure in years (PEY) with apolipoproteins, aminoacids, sphingomyelins, glucose metabolism, fatty acids, inflammation, and fluid balance with standardised metabolomic biomarkers in men

Pesticide exposure years, β (95% CI), Males						
	Unadjusted	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
Apolipoproteins						
Apolipoprotein A1 [g/L]	-0.087 (-0.272, 0.098)	-0.083 (-0.267, 0.101)	-.128 (-.323, 0.067)	-.145 (-.339, 0.049)	-.129 (-.324, 0.065)	-.144 (-.337, 0.049)
Apolipoprotein B [g/L]	-0.007 (-0.202, 0.188)	-0.017 (-0.206, 0.172)	-.076 (-.277, 0.124)	-.089 (-.289, 0.112)	-.086 (-.289, 0.117)	-.112 (-.314, 0.091)
Ratio of Apo B/Apo A1	0.048 (-0.136, 0.233)	0.036 (-0.137, 0.209)	0.0084 (-.176, 0.193)	0.008 (-.177, 0.193)	0.0006 (-.186, 0.187)	-.015 (-.201, 0.171)
Amino acids						
Alanine [µmol/L]	-0.181 (-0.381, 0.019)	-0.186 (-0.384, 0.012)	-.076 (-.285, 0.134)	-.088 (-.297, 0.121)	-.083 (-.295, 0.128)	-.109 (-.319, 0.102)
Glutamine [µmol/L]	-0.002 (-0.211, 0.207)	0.0021 (-0.206, 0.210)	-.088 (-.309, 0.133)	-.109 (-.327, 0.108)	-.089 (-.308, 0.129)	-.086 (-.305, 0.132)
Glycine [µmol/L]	-0.072 (-0.246, 0.101)	-0.069 (-0.242, 0.104)	-.087 (-.269, 0.095)	-.098 (-.279, 0.083)	-.116 (-.299, 0.066)	-.162 (-.341, 0.017)
Histidine [µmol/L]	0.143 (-0.076, 0.362)	0.139 (-0.079, 0.358)	0.175 (-.056, 0.407)	0.179 (-.053, 0.410)	0.167 (-.066, 0.400)	0.184 (-.049, 0.417)
Branched-chain amino acids						
Isoleucine [µmol/L]	-0.212 (-0.397, -0.026)	-0.222 (-0.401, -0.042)	-.189 (-.379, 0.0004)	-.195 (-.386, -.0051)	-.190 (-.383, 0.0024)	-.208 (-.400, -.016)
Leucine [µmol/L]	-0.179 (-0.361, 0.0016)	-0.189 (-0.365, -0.012)	-.149 (-.336, 0.038)	-.163 (-.349, 0.024)	-.159 (-.349, 0.030)	-.188 (-.377, 0.00048)
Valine [µmol/L]	-0.259 (-0.435, -0.083)	-0.266 (-0.439, -0.092)	-.229 (-.413, -.046)	-.241 (-.424, -.058)	-.234 (-.419, -.048)	-.259 (-.443, -.074)
Aromatic amino acids						
Phenylalanine [µmol/L]	0.127 (-0.063, 0.318)	0.118 (-0.066, 0.301)	0.059 (-.136, 0.253)	0.034 (-.158, 0.227)	0.029 (-.165, 0.224)	-.029 (-.219, 0.160)
Tyrosine [µmol/L]	-0.028 (-0.221, 0.166)	-0.034 (-0.224, 0.156)	-.00089 (-.202, 0.201)	-.0067 (-.207, 0.193)	0.00037 (-.203, 0.204)	-.0072 (-.210, 0.196)
Ketone bodies						
Acetoacetate [µmol/L]	-0.089 (-0.285, 0.108)	-0.084 (-0.280, 0.112)	-.165 (-.372, 0.043)	-.171 (-.379, 0.037)	-.153 (-.363, 0.056)	-.158 (-.367, 0.052)

Acetate [µmol/L]	0.179 (-0.023, 0.381)	0.182 (-0.019, 0.383)	0.260 (0.047, 0.473)	0.257 (0.044, 0.469)	0.276 (0.060, 0.492)	0.259 (0.043, 0.476)
beta-hydroxybutyrate [µmol/L]	-0.057 (-0.247, 0.134)	-0.054 (-0.243, 0.136)	-.153 (-.353, 0.047)	-.166 (-.366, 0.033)	-.161 (-.361, 0.039)	-.187 (-.387, 0.012)
Sphingolipids						
Sphingomyelin	-0.072 (-0.276, 0.133)	-0.074 (-0.279, 0.130)	-.166 (-.383, 0.051)	-.187 (-.402, 0.029)	-.180 (-.398, 0.038)	-.211 (-.427, 0.0049)
Total choline	-0.069 (-0.259, 0.120)	-0.071 (-0.261, 0.119)	-.138 (-.339, 0.063)	-.154 (-.354, 0.046)	-.142 (-.343, 0.059)	-.167 (-.367, 0.033)
Glycolysis related metabolites						
Citrate [µmol/L]	0.049 (-0.156, 0.255)	0.050 (-0.155, 0.256)	0.00035 (-.217, 0.218)	-.023 (-.239, 0.193)	0.0031 (-.216, 0.222)	-.025 (-.243, 0.192)
Glucose [mmol/L]	-0.001 (-0.200, 0.198)	-0.0025 (-0.202, 0.196)	-.072 (-.282, 0.138)	-.096 (-.304, 0.113)	-.094 (-.304, 0.117)	-.111 (-.321, 0.099)
Glycerol [mmol/L]	0.055 (-0.157, 0.267)	0.056 (-0.155, 0.268)	0.107 (-.117, 0.332)	0.131 (-.093, 0.354)	0.137 (-.089, 0.364)	0.157 (-.069, 0.383)
Lactate [mmol/L]	-0.199 (-0.398, 0.00052)	-0.202 (-0.401, -0.003)	-.112 (-.323, 0.098)	-.115 (-.326, 0.095)	-.108 (-.320, 0.105)	-.156 (-.365, 0.053)
Pyruvate [mmol/L]	0.085 (-0.118, 0.288)	0.086 (-0.117, 0.289)	0.053 (-.161, 0.267)	0.067 (-.146, 0.281)	0.049 (-.167, 0.266)	0.056 (-.161, 0.273)
Fatty acids						
Total fatty acids [mmol/L]	-0.099 (-0.297, 0.099)	-0.106 (-0.301, 0.089)	-.145 (-.351, 0.062)	-.158 (-.364, 0.048)	-.146 (-.354, 0.062)	-.169 (-.377, 0.037)
Monounsaturated fatty acids [mmol/L]	-0.129 (-0.324, 0.066)	-0.136 (-0.327, 0.054)	-.152 (-.353, 0.049)	-.159 (-.361, 0.042)	-.150 (-.353, 0.052)	-.167 (-.369, 0.035)
Saturated fatty acids [mmol/L]	0.019 (-0.176, 0.215)	0.013 (-0.179, 0.205)	-.067 (-.271, 0.137)	-.079 (-.283, 0.124)	-.060 (-.266, 0.145)	-.088 (-.292, 0.116)
Inflammation						
Alpha-1-acid glycoprotein [mmol/L]	-0.124 (-0.329, 0.081)	-0.132 (-0.333, 0.069)	-.139 (-.352, 0.074)	-.158 (-.369, 0.054)	-.161 (-.376, 0.054)	-.185 (-.399, 0.029)
Fluid balance						
Creatinine [µmol/L]	0.085 (-0.178, 0.348)	0.079 (-0.183, 0.341)	0.170 (-.107, 0.447)	0.169 (-.107, 0.445)	0.173 (-.107, 0.454)	0.188 (-.093, 0.469)
Albumin [standardized concentration units]	-0.107 (-0.329, 0.115)	-0.106 (-0.329, 0.116)	-.162 (-.399, 0.074)	-.184 (-.419, 0.051)	-.172 (-.411, 0.066)	-.197 (-.433, 0.040)

Table S53. Multivariable regression analyses of pesticide exposure in years (PEY) with apolipoproteins, aminoacids, sphingomyelins, glucose metabolism, fatty acids, inflammation, and fluid balance with standardised metabolomic biomarkers in women

Pesticide exposure years, β (95% CI), Females						
	Unadjusted	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
Apolipoproteins						
Apolipoprotein A1 [g/L]	0.048 (-0.348, 0.445)	0.062 (-0.331, 0.454)	0.010 (-.384, 0.405)	-.0053 (-.399, 0.389)	-.033 (-.444, 0.379)	-.026 (-.437, 0.386)
Apolipoprotein B [g/L]	0.278 (-0.092, 0.648)	0.270 (-0.089, 0.629)	0.186 (-.174, 0.546)	0.169 (-.188, 0.527)	0.270 (-.101, 0.642)	0.272 (-.099, 0.644)
Ratio of Apo B/Apo A1	0.239 (-0.118, 0.595)	0.222 (-0.117, 0.561)	0.176 (-.165, 0.517)	0.170 (-.170, 0.511)	0.288 (-.063, 0.639)	0.285 (-.066, 0.637)
Amino acids						
Alanine [µmol/L]	0.312 (-0.071, 0.696)	0.307 (-0.072, 0.686)	0.299 (-.082, 0.679)	0.289 (-.091, 0.669)	0.316 (-.081, 0.714)	0.303 (-.093, 0.699)
Glutamine [µmol/L]	-0.162 (-0.542, 0.219)	-0.158 (-0.539, 0.222)	-.196 (-.579, 0.187)	-.213 (-.594, 0.169)	-.214 (-.612, 0.185)	-.189 (-.583, 0.204)
Glycine [µmol/L]	-0.051 (-0.501, 0.399)	-0.0544 (-0.505, 0.396)	-.151 (-.602, 0.299)	-.169 (-.618, 0.279)	-.093 (-.564, 0.377)	-.128 (-.595, 0.338)
Histidine [µmol/L]	-0.399 (-0.781, -0.0163)	-0.398 (-0.779, -0.018)	-.317 (-.698, 0.064)	-.314 (-.696, 0.068)	-.392 (-.791, 0.0071)	-.377 (-.776, 0.021)
Branched-chain amino acids						
Isoleucine [µmol/L]	-0.164 (-0.511, 0.184)	-0.179 (-0.514, 0.156)	-.188 (-.525, 0.149)	-.196 (-.533, 0.141)	-.122 (-.475, 0.230)	-.109 (-.460, 0.241)
Leucine [µmol/L]	0.028 (-0.321, 0.377)	0.014 (-0.326, 0.353)	0.0028 (-.338, 0.344)	-.014 (-.354, 0.325)	0.028 (-.327, 0.383)	0.014 (-.339, 0.367)
Valine [µmol/L]	-0.031 (-0.396, 0.334)	-0.046 (-0.403, 0.311)	-.037 (-.396, 0.321)	-.058 (-.415, 0.299)	-.008 (-.382, 0.366)	-.0089 (-.379, 0.361)
Aromatic amino acids						
Phenylalanine [µmol/L]	0.357 (-0.034, 0.748)	0.345 (-0.035, 0.725)	0.276 (-.104, 0.657)	0.249 (-.128, 0.627)	0.197 (-.196, 0.589)	0.151 (-.236, 0.539)
Tyrosine [µmol/L]	-0.311 (-0.685, 0.062)	-0.322 (-0.691, 0.048)	-.346 (-.717, 0.025)	-.355 (-.726, 0.016)	-.355 (-.742, 0.031)	-.329 (-.713, 0.053)
Ketone bodies						
Acetoacetate [µmol/L]	-0.354 (-0.759, 0.052)	-0.354 (-0.759, 0.052)	-.404 (-.814, 0.0050)	-.404 (-.814, 0.0053)	-.429 (-.855, -.0023)	-.425 (-.850, -.00039)

Acetate [µmol/L]	0.024 (-0.355, 0.404)	0.025 (-0.356, 0.405)	-.0029 (-.383, 0.377)	-.019 (-.399, 0.360)	-.049 (-.444, 0.346)	-.055 (-.449, 0.339)
beta-hydroxybutyrate [µmol/L]	-0.359 (-0.782, 0.063)	-0.359 (-0.781, 0.063)	-.421 (-.842, 0.0009)	-.433 (-.855, -.0117)	-.423 (-.861, 0.015)	-.452 (-.889, -.015)
Sphingolipids						
Sphingomyelin	0.197 (-0.207, 0.601)	0.202 (-0.201, 0.604)	0.114 (-.289, 0.517)	0.090 (-.309, 0.491)	0.115 (-.303, 0.534)	0.117 (-.302, 0.536)
Total choline	0.259 (-0.142, 0.661)	0.265 (-0.135, 0.665)	0.191 (-.209, 0.593)	0.174 (-.226, 0.574)	0.185 (-.233, 0.603)	0.190 (-.228, 0.608)
Glycolysis related metabolites						
Citrate [µmol/L]	0.152 (-0.232, 0.535)	0.155 (-0.229, 0.538)	0.150 (-.236, 0.536)	0.138 (-.247, 0.524)	0.042 (-.359, 0.443)	0.047 (-.350, 0.445)
Glucose [mmol/L]	-0.092 (-0.502, 0.318)	-0.094 (-0.504, 0.317)	-.159 (-.571, 0.252)	-.194 (-.600, 0.213)	-.188 (-.615, 0.238)	-.166 (-.589, 0.258)
Glycerol [mmol/L]	0.251 (-0.141, 0.644)	0.257 (-0.134, 0.649)	0.286 (-.107, 0.679)	0.298 (-.094, 0.691)	0.293 (-.118, 0.704)	0.341 (-.069, 0.751)
Lactate [mmol/L]	-0.115 (-0.502, 0.271)	-0.122 (-0.506, 0.262)	-.113 (-.499, 0.272)	-.123 (-.509, 0.264)	-.139 (-.542, 0.263)	-.176 (-.571, 0.218)
Pyruvate [mmol/L]	-0.104 (-0.489, 0.281)	-0.096 (-0.479, 0.287)	-.101 (-.486, 0.285)	-.085 (-.469, 0.300)	-.064 (-.466, 0.338)	-.046 (-.448, 0.356)
Fatty acids						
Total fatty acids [mmol/L]	0.295 (-0.099, 0.689)	0.293 (-0.097, 0.683)	0.221 (-.169, 0.612)	0.207 (-.182, 0.596)	0.236 (-.171, 0.643)	0.240 (-.167, 0.647)
Monounsaturated fatty acids [mmol/L]	0.272 (-0.108, 0.652)	0.265 (-0.106, 0.636)	0.205 (-.168, 0.578)	0.197 (-.175, 0.569)	0.243 (-.144, 0.630)	0.246 (-.142, 0.633)
Saturated fatty acids [mmol/L]	0.367 (-0.032, 0.766)	0.367 (-0.028, 0.761)	0.285 (-.110, 0.681)	0.272 (-.122, 0.666)	0.288 (-.123, 0.699)	0.292 (-.119, 0.704)
Inflammation						
Alpha-1-acid glycoprotein [mmol/L]	0.019 (-0.363, 0.400)	0.0065 (-0.365, 0.378)	-.047 (-.419, 0.324)	-.076 (-.443, 0.292)	-.065 (-.449, 0.319)	-.062 (-.444, 0.321)
Fluid balance						
Creatinine [µmol/L]	-0.074 (-0.325, 0.178)	-0.074 (-0.325, 0.178)	-.048 (-.301, 0.205)	-.059 (-.312, 0.194)	-.083 (-.348, 0.181)	-.073 (-.338, 0.191)
Albumin [standardized concentration units]	-0.341 (-0.699, 0.017)	-0.339 (-0.697, 0.019)	-.407 (-.766, -.048)	-.441 (-.795, -.087)	-.449 (-.819, -.078)	-.453 (-.819, -.087)

Specific pesticides use (PEU)

Table S54. Multivariable regression analyses of specific pesticides use with total lipoprotein subclasses with standardised metabolomic biomarkers in men

Specific pesticides, β (95% CI), Males						
Total lipoprotein	**Unadjusted**	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_P	-0.094 (-0.337, 0.149)	-0.015 (-0.251, 0.221)	-.021 (-.262, 0.219)	-.019 (-.259, 0.221)	-.0029 (-.247, 0.241)	-.0041 (-.249, 0.240)
XL_VLDL_P	-0.134 (-0.376, 0.107)	-0.072 (-0.308, 0.164)	-.077 (-.318, 0.163)	-.076 (-.317, 0.164)	-.053 (-.297, 0.192)	-.049 (-.294, 0.195)
L_VLDL_P	-0.098 (-0.335, 0.139)	-0.038 (-0.269, 0.193)	-.010 (-.246, 0.225)	-.012 (-.247, 0.223)	0.019 (-.220, 0.258)	0.025 (-.215, 0.264)
M_VLDL_P	-0.072 (-0.303, 0.159)	-0.007 (-0.230, 0.216)	0.010 (-.217, 0.238)	0.010 (-.218, 0.238)	0.023 (-.209, 0.255)	0.027 (-.205, 0.258)
S_VLDL_P	-0.122 (-0.339, 0.095)	-0.054 (-0.264, 0.155)	-.050 (-.264, 0.164)	-.052 (-.266, 0.162)	-.046 (-.264, 0.172)	-.054 (-.272, 0.164)
XS_VLDL_P	-0.135 (-0.365, 0.095)	-0.074 (-0.299, 0.152)	-.109 (-.338, 0.121)	-.112 (-.342, 0.117)	-.119 (-.353, 0.113)	-.137 (-.369, 0.095)
IDL_P	0.047 (-0.182, 0.276)	0.053 (-0.179, 0.284)	0.070 (-.166, 0.307)	0.078 (-.159, 0.314)	0.103 (-.138, 0.344)	0.111 (-.130, 0.352)
L_LDL_P	-0.059 (-0.298, 0.180)	-0.016 (-0.254, 0.223)	-.079 (-.322, 0.163)	-.086 (-.328, 0.155)	-.102 (-.347, 0.143)	-.117 (-.359, 0.126)
M_LDL_P	-0.051 (-0.287, 0.184)	-0.0095 (-0.244, 0.225)	-.067 (-.306, 0.171)	-.074 (-.312, 0.164)	-.090 (-.332, 0.151)	-.104 (-.343, 0.136)
S_LDL_P	-0.064 (-0.301, 0.173)	-0.024 (-0.259, 0.212)	-.080 (-.320, 0.159)	-.087 (-.326, 0.152)	-.098 (-.341, 0.144)	-.111 (-.352, 0.129)
XL_HDL_P	0.063 (-0.173, 0.299)	0.013 (-0.218, 0.243)	-.018 (-.253, 0.217)	-.017 (-.252, 0.218)	0.012 (-.228, 0.251)	-.00087 (-.239, 0.238)
L_HDL_P	-0.015 (-0.250, 0.221)	-0.076 (-0.305, 0.153)	-.101 (-.334, 0.132)	-.106 (-.339, 0.127)	-.063 (-.299, 0.172)	-.057 (-.292, 0.178)
M_HDL_P	-0.200 (-0.432, 0.032)	-0.224 (-0.457, 0.0086)	-.219 (-.457, 0.017)	-.226 (-.462, 0.010)	-.175 (-.411, 0.061)	-.155 (-.388, 0.077)
S_HDL_P	-0.188 (-0.424, 0.047)	-0.179 (-0.417, 0.058)	-.204 (-.444, 0.037)	-.213 (-.452, 0.027)	-.179 (-.419, 0.059)	-.177 (-.414, 0.060)

Table S55. Multivariable regression analyses of specific pesticides use with total lipoprotein subclasses with standardised metabolomic biomarkers in women

Specific pesticides, β (95% CI), Females						
Total lipoprotein	**Unadjusted**	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_P	0.333 (0.059, 0.607)	0.269 (0.0075, 0.532)	0.26 (-.0091, 0.519)	0.243 (-.024, 0.511)	0.271 (0.00091, 0.542)	0.276 (0.0062, 0.546)
XL_VLDL_P	0.232 (-0.059, 0.524)	0.165 (-0.117, 0.447)	0.139 (-.145, 0.423)	0.118 (-.169, 0.405)	0.138 (-.152, 0.429)	0.159 (-.130, 0.449)
L_VLDL_P	0.269 (-0.027, 0.566)	0.194 (-0.090, 0.479)	0.192 (-.095, 0.479)	0.173 (-.118, 0.463)	0.211 (-.084, 0.506)	0.228 (-.067, 0.523)
M_VLDL_P	0.286 (0.014, 0.557)	0.209 (-0.051, 0.468)	0.182 (-.079, 0.443)	0.168 (-.096, 0.432)	0.198 (-.069, 0.466)	0.217 (-.049, 0.484)
S_VLDL_P	0.324 (0.036, 0.612)	0.246 (-0.029, 0.521)	0.203 (-.075, 0.481)	0.169 (-.110, 0.449)	0.185 (-.098, 0.467)	0.184 (-.099, 0.467)
XS_VLDL_P	0.343 (0.045, 0.642)	0.285 (-0.0057, 0.576)	0.215 (-.078, 0.508)	0.184 (-.111, 0.479)	0.197 (-.099, 0.495)	0.192 (-.106, 0.489)
IDL_P	0.020 (-0.324, 0.364)	0.042 (-0.302, 0.386)	0.042 (-.305, 0.389)	0.038 (-.313, 0.390)	0.054 (-.300, 0.408)	0.055 (-.299, 0.409)
L_LDL_P	0.224 (-0.076, 0.524)	0.189 (-0.106, 0.486)	0.099 (-.198, 0.396)	0.068 (-.231, 0.366)	0.096 (-.205, 0.396)	0.092 (-.209, 0.393)
M_LDL_P	0.226 (-0.074, 0.526)	0.189 (-0.107, 0.486)	0.103 (-.194, 0.400)	0.073 (-.225, 0.371)	0.104 (-.196, 0.405)	0.100 (-.199, 0.400)
S_LDL_P	0.226 (-0.075, 0.528)	0.189 (-0.108, 0.489)	0.107 (-.192, 0.406)	0.075 (-.224, 0.375)	0.107 (-.196, 0.409)	0.102 (-.200, 0.405)
XL_HDL_P	0.0017 (-0.262, 0.265)	0.060 (-0.197, 0.318)	0.046 (-.214, 0.306)	-.00013 (-.263, 0.263)	-.016 (-.282, 0.249)	-.041 (-.304, 0.222)
L_HDL_P	-0.333 (-0.595, -0.069)	-0.260 (-0.514, -0.0059)	-.282 (-.539, -.026)	-.327 (-.586, -.067)	-.365 (-.628, -.103)	-.365 (-.628, -.103)
M_HDL_P	-0.401 (-0.704, -0.098)	-0.371 (-0.674, -0.068)	-.395 (-.701, -.089)	-.415 (-.724, -.106)	-.461 (-.773, -.149)	-.437 (-.747, -.127)
S_HDL_P	-0.317 (-0.633, -0.00038)	-0.325 (-0.641, -0.0087)	-.387 (-.705, -.069)	-.408 (-.728, -.088)	-.440 (-.764, -.116)	-.432 (-.754, -.111)

Table S56. Multivariable regression analyses of specific pesticides use with triglyceride subclasses with standardised metabolomic biomarkers in men

Specific pesticides, β (95% CI), Males						
Triglycerides	**Unadjusted**	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_TG	-0.096 (-0.336, 0.144)	-0.019 (-0.252, 0.214)	-.025 (-.262, 0.211)	-.023 (-.259, 0.213)	-.0050 (-.245, 0.235)	-.0059 (-.247, 0.235)
XL_VLDL_TG	-0.145 (-0.379, 0.089)	-0.089 (-0.318, 0.140)	-.090 (-.324, 0.143)	-.089 (-.323, 0.143)	-.061 (-.299, 0.176)	-.056 (-.293, 0.182)
L_VLDL_TG	-0.095 (-0.328, 0.138)	-0.041 (-0.268, 0.187)	-.0069 (-.239, 0.225)	-.0085 (-.239, 0.223)	0.027 (-.208, 0.262)	0.035 (-.200, 0.269)
M_VLDL_TG	-0.073 (-0.295, 0.149)	-0.015 (-0.230, 0.199)	0.0087 (-.210, 0.228)	0.0087 (-.210, 0.228)	0.025 (-.198, 0.248)	0.032 (-.191, 0.255)
S_VLDL_TG	-0.093 (-0.305, 0.118)	-0.034 (-0.238, 0.171)	-.016 (-.224, 0.192)	-.017 (-.226, 0.191)	-.0057 (-.218, 0.206)	-.0087 (-.221, 0.203)
XS_VLDL_TG	-0.122 (-0.338, 0.094)	-0.060 (-0.269, 0.149)	-.062 (-.275, 0.151)	-.066 (-.279, 0.147)	-.057 (-.274, 0.159)	-.071 (-.286, 0.145)
VLDL_TG	-0.093 (-0.321, 0.135)	-0.029 (-0.249, 0.191)	-.011 (-.236, 0.213)	-.012 (-.237, 0.213)	0.0065 (-.222, 0.235)	0.0091 (-.219, 0.238)
IDL_TG	-0.103 (-0.325, 0.120)	-0.048 (-0.266, 0.169)	-.074 (-.296, 0.148)	-.080 (-.301, 0.141)	-.073 (-.298, 0.152)	-.096 (-.318, 0.127)
L_LDL_TG	-0.085 (-0.311, 0.142)	-0.032 (-0.255, 0.191)	-.075 (-.301, 0.152)	-.082 (-.307, 0.143)	-.076 (-.305, 0.153)	-.102 (-.328, 0.124)
M_LDL_TG	-0.043 (-0.271, 0.184)	0.005 (-0.219, 0.229)	-.039 (-.267, 0.190)	-.047 (-.274, 0.181)	-.041 (-.272, 0.189)	-.067 (-.294, 0.161)
S_LDL_TG	-0.087 (-0.313, 0.138)	-0.029 (-0.251, 0.191)	-.061 (-.285, 0.164)	-.067 (-.291, 0.157)	-.059 (-.286, 0.169)	-.078 (-.304, 0.148)
LDL_TG	-0.078 (-0.305, 0.149)	-0.025 (-0.248, 0.198)	-.066 (-.293, 0.161)	-.074 (-.299, 0.152)	-.067 (-.297, 0.162)	-.092 (-.318, 0.135)
XL_HDL_TG	0.137 (-0.101, 0.376)	0.163 (-0.076, 0.403)	0.115 (-.128, 0.358)	0.114 (-.129, 0.357)	0.114 (-.133, 0.361)	0.096 (-.149, 0.341)
L_HDL_TG	0.076 (-0.164, 0.316)	0.072 (-0.169, 0.315)	0.041 (-.205, 0.288)	0.032 (-.213, 0.277)	0.040 (-.209, 0.289)	0.035 (-.211, 0.282)
M_HDL_TG	-0.060 (-0.294, 0.174)	0.0089 (-0.221, 0.239)	0.0086 (-.226, 0.243)	0.0061 (-.228, 0.241)	0.029 (-.208, 0.267)	0.028 (-.209, 0.265)
S_HDL_TG	0.0079 (-0.204, 0.219)	0.078 (-0.126, 0.282)	0.050 (-.157, 0.257)	0.047 (-.161, 0.254)	0.052 (-.158, 0.263)	0.032 (-.177, 0.241)
HDL_TG	0.027 (-0.204, 0.258)	0.080 (-0.149, 0.309)	0.051 (-.182, 0.285)	0.046 (-.187, 0.279)	0.061 (-.176, 0.298)	0.047 (-.188, 0.282)
Serum_TG	-0.103 (-0.341, 0.134)	-0.034 (-0.263, 0.195)	-.029 (-.262, 0.204)	-.031 (-.264, 0.202)	-.011 (-.248, 0.226)	-.015 (-.252, 0.222)

Table S57. Multivariable regression analyses of specific pesticides use with triglyceride subclasses with standardised metabolomic biomarkers in women

Specific pesticides, β (95% CI), Females						
Triglycerides	**Unadjusted**	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_TG	0.331 (0.058, 0.604)	0.268 (0.0069, 0.529)	0.255 (-.0081, 0.518)	0.246 (-.019, 0.512)	0.275 (0.0056, 0.544)	0.279 (0.010, 0.548)
XL_VLDL_TG	0.175 (-0.123, 0.474)	0.111 (-0.179, 0.400)	0.091 (-.201, 0.382)	0.066 (-.228, 0.361)	0.081 (-.217, 0.379)	0.104 (-.193, 0.401)
L_VLDL_TG	0.215 (-0.085, 0.514)	0.141 (-0.147, 0.429)	0.143 (-.148, 0.433)	0.124 (-.169, 0.419)	0.167 (-.133, 0.466)	0.188 (-.111, 0.486)
M_VLDL_TG	0.253 (-0.030, 0.535)	0.177 (-0.095, 0.449)	0.162 (-.112, 0.436)	0.151 (-.125, 0.427)	0.187 (-.093, 0.467)	0.209 (-.070, 0.489)
S_VLDL_TG	0.335 (0.029, 0.640)	0.257 (-0.038, 0.551)	0.230 (-.068, 0.528)	0.199 (-.100, 0.499)	0.206 (-.097, 0.509)	0.209 (-.095, 0.512)
XS_VLDL_TG	0.338 (0.026, 0.649)	0.267 (-0.034, 0.568)	0.217 (-.087, 0.521)	0.171 (-.134, 0.477)	0.159 (-.149, 0.468)	0.153 (-.156, 0.462)
VLDL_TG	0.292 (0.0087, 0.576)	0.211 (-0.059, 0.482)	0.189 (-.084, 0.463)	0.167 (-.109, 0.443)	0.181 (-.098, 0.459)	0.197 (-.082, 0.476)
IDL_TG	0.338 (0.025, 0.652)	0.288 (-0.019, 0.595)	0.223 (-.086, 0.532)	0.169 (-.142, 0.479)	0.144 (-.170, 0.458)	0.128 (-.186, 0.442)
L_LDL_TG	0.294 (-0.024, 0.612)	0.254 (-0.059, 0.567)	0.179 (-.135, 0.495)	0.122 (-.195, 0.438)	0.092 (-.228, 0.412)	0.073 (-.247, 0.392)
M_LDL_TG	0.284 (-0.029, 0.596)	0.246 (-0.062, 0.554)	0.187 (-.123, 0.498)	0.135 (-.178, 0.447)	0.104 (-.212, 0.419)	0.084 (-.232, 0.399)
S_LDL_TG	0.289 (-0.024, 0.602)	0.238 (-0.068, 0.545)	0.185 (-.124, 0.494)	0.136 (-.175, 0.447)	0.111 (-.203, 0.425)	0.095 (-.218, 0.409)
LDL_TG	0.292 (-0.023, 0.608)	0.251 (-0.059, 0.561)	0.181 (-.131, 0.493)	0.126 (-.188, 0.439)	0.096 (-.221, 0.413)	0.077 (-.239, 0.393)
XL_HDL_TG	0.053 (-0.253, 0.358)	0.067 (-0.238, 0.372)	-.0044 (-.312, 0.303)	-.061 (-.371, 0.249)	-.077 (-.390, 0.236)	-.082 (-.396, 0.231)
L_HDL_TG	-0.199 (-0.498, 0.099)	-0.168 (-0.465, 0.129)	-.243 (-.542, 0.056)	-.295 (-.596, 0.0068)	-.328 (-.633, -.022)	-.337 (-.642, -.032)
M_HDL_TG	0.183 (-0.118, 0.483)	0.136 (-0.160, 0.432)	0.087 (-.211, 0.386)	0.051 (-.251, 0.352)	0.026 (-.281, 0.332)	0.033 (-.273, 0.339)
S_HDL_TG	0.325 (0.0033, 0.647)	0.262 (-0.052, 0.576)	0.203 (-.114, 0.520)	0.151 (-.168, 0.471)	0.131 (-.193, 0.456)	0.109 (-.215, 0.432)
HDL_TG	0.077 (-0.239, 0.393)	0.056 (-0.258, 0.369)	-.023 (-.339, 0.293)	-.085 (-.403, 0.232)	-.116 (-.438, 0.206)	-.124 (-.446, 0.198)
Serum_TG	0.297 (0.016, 0.578)	0.224 (-0.045, 0.494)	0.183 (-.089, 0.455)	0.145 (-.129, 0.419)	0.141 (-.137, 0.418)	0.147 (-.130, 0.425)

Table S58. Multivariable regression analyses of specific pesticides use with phospholipid subclasses with standardised metabolomic biomarkers in men

Specific pesticides, β (95% CI), Males						
Phospholipids	**Unadjusted**	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_PL	-0.139 (-0.371, 0.094)	-0.069 (-0.297, 0.158)	-.069 (-.301, 0.162)	-.068 (-.299, 0.164)	-.045 (-.281, 0.189)	-.043 (-.278, 0.192)
XL_VLDL_PL	-0.108 (-0.347, 0.131)	-0.044 (-0.278, 0.190)	-.054 (-.293, 0.184)	-.053 (-.292, 0.186)	-.032 (-.275, 0.211)	-.032 (-.275, 0.212)
L_VLDL_PL	-0.073 (-0.309, 0.162)	-0.012 (-0.241, 0.217)	0.011 (-.222, 0.245)	0.0094 (-.224, 0.243)	0.038 (-.199, 0.275)	0.042 (-.195, 0.279)
M_VLDL_PL	-0.077 (-0.312, 0.159)	-0.009 (-0.236, 0.218)	0.0019 (-.229, 0.233)	0.0012 (-.230, 0.233)	0.012 (-.224, 0.248)	0.014 (-.222, 0.249)
S_VLDL_PL	-0.146 (-0.366, 0.074)	-0.078 (-0.292, 0.135)	-.074 (-.291, 0.144)	-.076 (-.294, 0.142)	-.064 (-.286, 0.157)	-.074 (-.295, 0.147)
XS_VLDL_PL	-0.123 (-0.360, 0.114)	-0.075 (-0.311, 0.160)	-.114 (-.354, 0.125)	-.119 (-.359, 0.119)	-.132 (-.376, 0.111)	-.147 (-.388, 0.095)
IDL_PL	-0.060 (-0.307, 0.187)	-0.021 (-0.268, 0.226)	-.089 (-.339, 0.162)	-.095 (-.345, 0.155)	-.115 (-.369, 0.138)	-.129 (-.381, 0.123)
L_LDL_PL	-0.061 (-0.303, 0.180)	-0.022 (-0.264, 0.219)	-.088 (-.334, 0.157)	-.095 (-.339, 0.150)	-.108 (-.356, 0.140)	-.119 (-.366, 0.127)
M_LDL_PL	-0.079 (-0.323, 0.165)	-0.033 (-0.275, 0.209)	-.097 (-.343, 0.149)	-.104 (-.349, 0.141)	-.109 (-.358, 0.139)	-.122 (-.369, 0.125)
S_LDL_PL	-0.068 (-0.308, 0.171)	-0.029 (-0.268, 0.209)	-.093 (-.335, 0.149)	-.099 (-.341, 0.142)	-.095 (-.340, 0.149)	-.107 (-.349, 0.136)
XL_HDL_PL	0.107 (-0.149, 0.364)	0.047 (-0.200, 0.294)	0.041 (-.210, 0.293)	0.042 (-.210, 0.294)	0.064 (-.191, 0.319)	0.057 (-.198, 0.311)
L_HDL_PL	-0.046 (-0.284, 0.193)	-0.104 (-0.337, 0.128)	-.124 (-.361, 0.112)	-.129 (-.366, 0.107)	-.084 (-.322, 0.155)	-.073 (-.311, 0.165)
M_HDL_PL	-0.211 (-0.443, 0.022)	-0.235 (-0.468, -0.0018)	-.236 (-.473, 0.00043)	-.243 (-.479, -.0065)	-.187 (-.423, 0.048)	-.169 (-.402, 0.063)
S_HDL_PL	-0.221 (-0.446, 0.0039)	-0.227 (-0.454, -0.0003)	-.229 (-.459, 0.00025)	-.235 (-.465, -.0056)	-.187 (-.416, 0.041)	-.172 (-.398, 0.054)

Table S59. Multivariable regression analyses of specific pesticides use with phospholipid subclasses with standardised metabolomic biomarkers in women

Specific pesticides, β (95% CI), Females						
Phospholipids	**Unadjusted**	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_PL	0.228 (-0.054, 0.510)	0.174 (-0.099, 0.448)	0.173 (-.103, 0.449)	0.157 (-.122, 0.436)	0.165 (-.118, 0.448)	0.179 (-.103, 0.463)
XL_VLDL_PL	0.246 (-0.055, 0.546)	0.181 (-0.111, 0.472)	0.147 (-.146, 0.439)	0.127 (-.169, 0.423)	0.142 (-.159, 0.444)	0.161 (-.140, 0.461)
L_VLDL_PL	0.279 (-0.019, 0.576)	0.204 (-0.082, 0.489)	0.194 (-.094, 0.482)	0.172 (-.119, 0.464)	0.203 (-.094, 0.499)	0.218 (-.079, 0.514)
M_VLDL_PL	0.297 (0.021, 0.573)	0.219 (-0.044, 0.482)	0.183 (-.082, 0.449)	0.165 (-.103, 0.433)	0.189 (-.082, 0.461)	0.206 (-.065, 0.477)
S_VLDL_PL	0.331 (0.027, 0.634)	0.255 (-0.037, 0.547)	0.213 (-.081, 0.508)	0.174 (-.123, 0.470)	0.178 (-.122, 0.477)	0.174 (-.126, 0.473)
XS_VLDL_PL	0.303 (0.0016, 0.604)	0.259 (-0.037, 0.555)	0.184 (-.114, 0.482)	0.158 (-.141, 0.458)	0.172 (-.131, 0.474)	0.171 (-.131, 0.473)
IDL_PL	0.211 (-0.092, 0.513)	0.182 (-0.118, 0.481)	0.089 (-.212, 0.389)	0.058 (-.244, 0.359)	0.081 (-.223, 0.385)	0.080 (-.224, 0.384)
L_LDL_PL	0.168 (-0.129, 0.464)	0.137 (-0.156, 0.431)	0.045 (-.249, 0.339)	0.019 (-.277, 0.314)	0.048 (-.250, 0.346)	0.048 (-.249, 0.346)
M_LDL_PL	0.204 (-0.097, 0.504)	0.165 (-0.131, 0.461)	0.065 (-.232, 0.362)	0.033 (-.265, 0.331)	0.063 (-.238, 0.364)	0.058 (-.242, 0.359)
S_LDL_PL	0.186 (-0.113, 0.485)	0.153 (-0.142, 0.448)	0.059 (-.237, 0.355)	0.019 (-.278, 0.317)	0.042 (-.259, 0.343)	0.037 (-.264, 0.339)
XL_HDL_PL	-0.030 (-0.247, 0.187)	0.028 (-0.182, 0.238)	0.021 (-.191, 0.233)	-.012 (-.227, 0.202)	-.029 (-.245, 0.187)	-.042 (-.257, 0.173)
L_HDL_PL	-0.361 (-0.625, -0.096)	-0.290 (-0.547, -0.033)	-.309 (-.568, -.049)	-.351 (-.614, -.089)	-.392 (-.657, -.127)	-.387 (-.653, -.122)
M_HDL_PL	-0.399 (-0.707, -0.091)	-0.366 (-0.674, -0.059)	-.394 (-.704, -.084)	-.425 (-.738, -.111)	-.475 (-.792, -.157)	-.453 (-.768, -.138)
S_HDL_PL	-0.601 (-0.909, -0.293)	-0.593 (-0.901, -0.284)	-.602 (-.913, -.291)	-.608 (-.922, -.293)	-.662 (-.979, -.344)	-.643 (-.959, -.328)

Table S60. Multivariable regression analyses of specific pesticides use with cholesterol esters subclasses with standardised metabolomic biomarkers in men

Specific pesticides, β (95% CI), Males						
Cholesterol esters	**Unadjusted**	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_CE	0.019 (-0.204, 0.242)	0.089 (-0.129, 0.308)	0.091 (-.131, 0.313)	0.094 (-.128, 0.316)	0.084 (-.142, 0.310)	0.078 (-.148, 0.304)
XL_VLDL_CE	-0.052 (-0.282, 0.178)	0.012 (-0.213, 0.237)	0.00068 (-.228, 0.229)	0.0034 (-.225, 0.232)	0.00049 (-.233, 0.234)	-.0043 (-.238, 0.229)
L_VLDL_CE	-0.048 (-0.282, 0.186)	0.012 (-0.218, 0.243)	0.049 (-.186, 0.284)	0.048 (-.185, 0.282)	0.051 (-.186, 0.287)	0.048 (-.189, 0.285)
M_VLDL_CE	-0.015 (-0.254, 0.224)	0.058 (-0.174, 0.289)	0.055 (-.181, 0.291)	0.055 (-.181, 0.292)	0.047 (-.194, 0.287)	0.040 (-.200, 0.280)
S_VLDL_CE	-0.104 (-0.326, 0.119)	-0.039 (-0.258, 0.179)	-.069 (-.292, 0.153)	-.072 (-.294, 0.151)	-.086 (-.313, 0.140)	-.101 (-.326, 0.125)
XS_VLDL_CE	-0.097 (-0.332, 0.139)	-0.043 (-0.277, 0.191)	-.099 (-.336, 0.139)	-.099 (-.337, 0.139)	-.117 (-.358, 0.124)	-.134 (-.374, 0.106)
IDL_CE	-0.076 (-0.312, 0.161)	-0.033 (-0.269, 0.203)	-.101 (-.341, 0.139)	-.106 (-.345, 0.134)	-.122 (-.365, 0.120)	-.134 (-.375, 0.107)
L_LDL_CE	-0.051 (-0.288, 0.187)	-0.0093 (-0.247, 0.228)	-.073 (-.314, 0.169)	-.079 (-.319, 0.162)	-.099 (-.343, 0.145)	-.111 (-.353, 0.132)
M_LDL_CE	-0.033 (-0.268, 0.203)	0.0019 (-0.234, 0.238)	-.052 (-.292, 0.188)	-.058 (-.297, 0.181)	-.082 (-.325, 0.162)	-.091 (-.333, 0.151)
S_LDL_CE	-0.048 (-0.291, 0.195)	-0.019 (-0.263, 0.225)	-.070 (-.319, 0.178)	-.076 (-.324, 0.172)	-.098 (-.351, 0.154)	-.108 (-.359, 0.143)
XL_HDL_CE	0.055 (-0.189, 0.299)	0.025 (-0.217, 0.267)	-.016 (-.262, 0.231)	-.013 (-.259, 0.234)	0.012 (-.239, 0.264)	-.0077 (-.258, 0.242)
L_HDL_CE	0.026 (-0.217, 0.269)	-0.040 (-0.275, 0.195)	-.066 (-.306, 0.173)	-.069 (-.309, 0.169)	-.029 (-.272, 0.214)	-.025 (-.268, 0.218)
M_HDL_CE	-0.155 (-0.391, 0.081)	-0.194 (-0.429, 0.041)	-.182 (-.421, 0.057)	-.187 (-.426, 0.052)	-.143 (-.382, 0.097)	-.119 (-.355, 0.117)
S_HDL_CE	-0.069 (-0.331, 0.193)	-0.066 (-0.331, 0.198)	-.099 (-.369, 0.169)	-.108 (-.377, 0.159)	-.113 (-.385, 0.159)	-.121 (-.392, 0.151)
EstC	-0.139 (-0.379, 0.100)	-0.110 (-0.352, 0.131)	-.166 (-.411, 0.079)	-.173 (-.417, 0.072)	-.169 (-.417, 0.079)	-.179 (-.425, 0.067)

Table S61. Multivariable regression analyses of specific pesticides use with cholesterol esters subclasses with standardised metabolomic biomarkers in women

Specific pesticides, β (95% CI), Females						
Cholesterol esters	**Unadjusted**	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_CE	0.432 (0.129, 0.736)	0.375 (0.080, 0.671)	0.349 (0.051, 0.647)	0.334 (0.033, 0.636)	0.373 (0.068, 0.677)	0.372 (0.068, 0.676)
XL_VLDL_CE	0.377 (0.064, 0.691)	0.315 (0.0087, 0.620)	0.288 (-.0189, 0.595)	0.275 (-.035, 0.585)	0.313 (0.0013, 0.625)	0.318 (0.0068, 0.629)
L_VLDL_CE	0.448 (0.136, 0.760)	0.379 (0.075, 0.682)	0.367 (0.061, 0.674)	0.355 (0.044, 0.665)	0.390 (0.076, 0.705)	0.385 (0.070, 0.699)
M_VLDL_CE	0.407 (0.126, 0.689)	0.338 (0.066, 0.611)	0.286 (0.012, 0.560)	0.268 (-.0095, 0.545)	0.301 (0.021, 0.582)	0.311 (0.031, 0.592)
S_VLDL_CE	0.301 (0.0059, 0.595)	0.235 (-0.051, 0.521)	0.169 (-.119, 0.457)	0.144 (-.146, 0.433)	0.179 (-.112, 0.471)	0.172 (-.119, 0.464)
XS_VLDL_CE	0.308 (0.019, 0.597)	0.260 (-0.024, 0.545)	0.201 (-.086, 0.487)	0.192 (-.097, 0.482)	0.222 (-.068, 0.513)	0.213 (-.077, 0.504)
IDL_CE	0.221 (-0.074, 0.515)	0.187 (-0.105, 0.478)	0.101 (-.192, 0.394)	0.079 (-.215, 0.374)	0.111 (-.186, 0.408)	0.111 (-.186, 0.408)
L_LDL_CE	0.221 (-0.083, 0.524)	0.186 (-0.114, 0.486)	0.099 (-.202, 0.401)	0.077 (-.226, 0.379)	0.119 (-.186, 0.423)	0.118 (-.187, 0.423)
M_LDL_CE	0.209 (-0.093, 0.511)	0.178 (-0.121, 0.478)	0.106 (-.195, 0.407)	0.088 (-.214, 0.389)	0.133 (-.171, 0.436)	0.134 (-.169, 0.437)
S_LDL_CE	0.203 (-0.092, 0.497)	0.174 (-0.118, 0.466)	0.109 (-.186, 0.403)	0.091 (-.204, 0.386)	0.136 (-.161, 0.433)	0.136 (-.161, 0.433)
XL_HDL_CE	0.083 (-0.204, 0.369)	0.116 (-0.169, 0.402)	0.104 (-.185, 0.392)	0.063 (-.229, 0.354)	0.056 (-.240, 0.351)	0.013 (-.277, 0.302)
L_HDL_CE	-0.298 (-0.542, -0.055)	-0.225 (-0.459, 0.0081)	-.238 (-.474, -.0021)	-.278 (-.516, -.039)	-.312 (-.553, -.071)	-.314 (-.555, -.074)
M_HDL_CE	-0.451 (-0.747, -0.156)	-0.416 (-0.710, -0.122)	-.423 (-.719, -.126)	-.419 (-.719, -.119)	-.458 (-.761, -.155)	-.432 (-.733, -.131)
S_HDL_CE	-0.043 (-0.316, 0.231)	-0.055 (-0.328, 0.218)	-.128 (-.401, 0.146)	-.141 (-.415, 0.133)	-.126 (-.404, 0.152)	-.129 (-.406, 0.147)
EstC	0.106 (-0.193, 0.405)	0.090 (-0.207, 0.387)	0.0046 (-.294, 0.303)	-.033 (-.333, 0.266)	-.016 (-.320, 0.287)	-.019 (-.323, 0.285)

Table S62. Multivariable regression analyses of specific pesticides use with free cholesterol subclasses with standardised metabolomic biomarkers in men

Specific pesticides, β (95% CI), Males						
Free cholesterol	**Unadjusted**	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_FC	-0.086 (-0.319, 0.147)	-0.016 (-0.244, 0.211)	-.025 (-.256, 0.207)	-.022 (-.254, 0.209)	-.0063 (-.242, 0.229)	-.0068 (-.243, 0.229)
XL_VLDL_FC	-0.096 (-0.333, 0.141)	-0.028 (-0.259, 0.204)	-.047 (-.283, 0.189)	-.046 (-.283, 0.191)	-.032 (-.274, 0.209)	-.036 (-.277, 0.205)
L_VLDL_FC	-0.093 (-0.321, 0.135)	-0.036 (-0.259, 0.188)	-.011 (-.239, 0.217)	-.012 (-.239, 0.216)	0.011 (-.222, 0.243)	0.014 (-.218, 0.246)
M_VLDL_FC	-0.076 (-0.306, 0.154)	-0.012 (-0.235, 0.210)	-.000093 (-.227, 0.227)	-.00051 (-.228, 0.227)	0.0097 (-.222, 0.241)	0.011 (-.219, 0.242)
S_VLDL_FC	-0.138 (-0.354, 0.077)	-0.075 (-0.284, 0.135)	-.078 (-.292, 0.136)	-.081 (-.295, 0.133)	-.074 (-.292, 0.144)	-.084 (-.302, 0.133)
XS_VLDL_FC	-0.104 (-0.340, 0.133)	-0.060 (-0.296, 0.176)	-.096 (-.336, 0.144)	-.099 (-.339, 0.139)	-.115 (-.359, 0.129)	-.132 (-.3745, 0.111)
IDL_FC	-0.051 (-0.301, 0.199)	-.021 (-0.273, 0.230)	-.084 (-.339, 0.172)	-.089 (-.344, 0.166)	-.114 (-.373, 0.144)	-.128 (-.385, 0.129)
L_LDL_FC	-0.029 (-0.274, 0.217)	0.0021 (-0.245, 0.249)	-.070 (-.321, 0.180)	-.076 (-.326, 0.173)	-.099 (-.353, 0.154)	-.113 (-.365, 0.138)
M_LDL_FC	-0.035 (-0.271, 0.201)	-0.001 (-0.238, 0.235)	-.072 (-.312, 0.168)	-.079 (-.318, 0.160)	-.094 (-.337, 0.149)	-.109 (-.350, 0.131)
S_LDL_FC	-0.032 (-0.273, 0.209)	0.00035 (-0.241, 0.241)	-.073 (-.317, 0.172)	-.079 (-.323, 0.165)	-.090 (-.338, 0.158)	-.107 (-.353, 0.138)
XL_HDL_FC	0.077 (-0.181, 0.335)	0.036 (-0.216, 0.287)	-.0069 (-.263, 0.249)	-.0039 (-.260, 0.252)	0.019 (-.242, 0.281)	0.013 (-.248, 0.274)
L_HDL_FC	0.033 (-0.221, 0.287)	-0.039 (-0.283, 0.206)	-.066 (-.315, 0.183)	-.069 (-.318, 0.180)	-.033 (-.286, 0.221)	-.030 (-.284, 0.223)
M_HDL_FC	-0.197 (-0.439, 0.046)	-0.231 (-0.473, 0.012)	-.230 (-.477, 0.016)	-.237 (-.483, 0.0089)	-.192 (-.439, 0.055)	-.174 (-.418, 0.069)
S_HDL_FC	-0.198 (-0.439, 0.043)	-0.203 (-0.446, 0.040)	-.227 (-.474, 0.019)	-.235 (-.480, 0.010)	-.195 (-.441, 0.051)	-.191 (-.434, 0.053)
Free cholesterol	-0.103 (-0.347, 0.139)	-0.077 (-0.322, 0.167)	-.140 (-.389, 0.108)	-.146 (-.394, 0.1018)	-.152 (-.404, 0.099)	-.163 (-.412, 0.087)

Table S63. Multivariable regression analyses of specific pesticides use with free cholesterol subclasses with standardised metabolomic biomarkers in women

Specific pesticides, β (95% CI), Females						
Free cholesterol	**Unadjusted**	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_FC	0.239 (-0.048, 0.525)	0.182 (-0.095, 0.459)	0.164 (-.115, 0.444)	0.142 (-.1409, 0.425)	0.143 (-.144, 0.430)	0.156 (-.131, 0.443)
XL_VLDL_FC	0.256 (-0.042, 0.554)	0.193 (-0.096, 0.483)	0.154 (-.134, 0.442)	0.137 (-.155, 0.429)	0.159 (-.137, 0.455)	0.169 (-.127, 0.466)
L_VLDL_FC	0.251 (-0.061, 0.563)	0.178 (-0.124, 0.479)	0.170 (-.134, 0.474)	0.144 (-.164, 0.452)	0.161 (-.151, 0.474)	0.177 (-.136, 0.489)
M_VLDL_FC	0.278 (-0.0061, 0.562)	0.202 (-0.071, 0.474)	0.167 (-.108, 0.441)	0.142 (-.136, 0.419)	0.157 (-.124, 0.438)	0.174 (-.107, 0.454)
S_VLDL_FC	0.287 (-0.013, 0.587)	0.215 (-0.074, 0.504)	0.164 (-.128, 0.455)	0.125 (-.169, 0.418)	0.133 (-.164, 0.429)	0.129 (-.167, 0.426)
XS_VLDL_FC	0.266 (-0.029, 0.561)	0.225 (-0.066, 0.515)	0.157 (-.136, 0.449)	0.131 (-.163, 0.426)	0.148 (-.149, 0.445)	0.143 (-.154, 0.441)
IDL_FC	0.205 (-0.093, 0.502)	0.184 (-0.112, 0.479)	0.098 (-.199, 0.395)	0.069 (-.229, 0.368)	0.093 (-.207, 0.394)	0.093 (-.208, 0.393)
L_LDL_FC	0.197 (-0.098, 0.492)	0.174 (-0.119, 0.467)	0.082 (-.212, 0.376)	0.054 (-.241, 0.349)	0.086 (-.211, 0.383)	0.082 (-.216, 0.379)
M_LDL_FC	0.203 (-0.090, 0.495)	0.173 (-0.117, 0.462)	0.075 (-.215, 0.365)	0.044 (-.247, 0.335)	0.079 (-.215, 0.373)	0.069 (-.225, 0.363)
S_LDL_FC	0.218 (-0.081, 0.518)	0.185 (-0.111, 0.481)	0.088 (-.208, 0.385)	0.057 (-.241, 0.355)	0.092 (-.209, 0.393)	0.078 (-.223, 0.379)
XL_HDL_FC	0.071 (-0.189, 0.331)	0.124 (-0.132, 0.379)	0.109 (-.149, 0.368)	0.070 (-.191, 0.332)	0.063 (-.201, 0.328)	0.046 (-.216, 0.308)
L_HDL_FC	-0.246 (-0.479, -0.011)	-0.172 (-0.396, 0.052)	-.179 (-.406, 0.047)	-.215 (-.445, 0.014)	-.245 (-.476, -.014)	-.247 (-.479, -.0162)
M_HDL_FC	-0.377 (-0.669, -0.085)	-0.341 (-0.632, -0.051)	-.368 (-.661, -.075)	-.393 (-.689, -.096)	-.437 (-.736, -.137)	-.416 (-.714, -.118)
S_HDL_FC	-0.576 (-0.897, -0.254)	-0.565 (-0.887, -0.244)	-.611 (-.935, -.287)	-.652 (-.978, -.325)	-.697 (-1.028, -.366)	-.691 (-1.02, -.362)
Free cholesterol	0.127 (-0.179, 0.436)	0.109 (-0.196, 0.415)	0.015 (-.292, 0.322)	-.025 (-.333, 0.284)	-.0082 (-.321, 0.305)	-.0067 (-.319, 0.306)

Table S64. Multivariable regression analyses of specific pesticides use with total lipid subclasses with standardised metabolomic biomarkers in men

Specific pesticides, β (95% CI), Males						
Total lipids	**Unadjusted**	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_L	-0.093 (-0.334, 0.149)	-0.014 (-0.249, 0.221)	-.020 (-.259, 0.218)	-.018 (-.257, 0.220)	-.0026 (-.245, 0.240)	-.0039 (-.247, 0.239)
XL_VLDL_L	-0.129 (-0.371, 0.113)	-0.065 (-0.301, 0.171)	-.072 (-.313, 0.168)	-.071 (-.312, 0.169)	-.049 (-.294, 0.196)	-.046 (-.291, 0.199)
L_VLDL_L	-0.096 (-0.331, 0.139)	-0.036 (-0.265, 0.193)	-.0095 (-.243, 0.224)	-.011 (-.244, 0.222)	0.018 (-.219, 0.255)	0.023 (-.214, 0.261)
M_VLDL_L	-0.071 (-0.303, 0.161)	-0.005 (-0.229, 0.219)	0.011 (-.218, 0.239)	0.011 (-.218, 0.239)	0.022 (-.210, 0.255)	0.025 (-.207, 0.258)
S_VLDL_L	-0.125 (-0.342, 0.092)	-0.057 (-0.267, 0.153)	-.056 (-.269, 0.158)	-.058 (-.272, 0.156)	-.053 (-.271, 0.165)	-.062 (-.279, 0.156)
XS_VLDL_L	-0.128 (-0.356, 0.099)	-0.070 (-0.295, 0.154)	-.108 (-.336, 0.120)	-.111 (-.339, 0.117)	-.121 (-.352, 0.111)	-.137 (-.368, 0.093)
IDL_L	-0.068 (-0.306, 0.169)	-0.027 (-0.264, 0.211)	-.092 (-.332, 0.149)	-.097 (-.337, 0.143)	-.113 (-.357, 0.130)	-.127 (-.369, 0.115)
L_LDL_L	-0.054 (-0.294, 0.185)	-0.013 (-0.252, 0.226)	-.078 (-.320, 0.165)	-.084 (-.326, 0.158)	-.102 (-.347, 0.144)	-.115 (-.359, 0.128)
M_LDL_L	-0.049 (-0.288, 0.191)	-0.008 (-0.246, 0.231)	-.067 (-.309, 0.176)	-.074 (-.316, 0.168)	-.091 (-.337, 0.154)	-.105 (-.349, 0.139)
S_LDL_L	-0.058 (-0.293, 0.176)	-0.020 (-0.254, 0.214)	-.077 (-.315, 0.161)	-.084 (-.321, 0.153)	-.096 (-.337, 0.145)	-.109 (-.348, 0.131)
XL_HDL_L	0.064 (-0.176, 0.303)	0.013 (-0.221, 0.248)	-.018 (-.257, 0.221)	-.017 (-.256, 0.222)	0.011 (-.232, 0.255)	-.001 (-.244, 0.242)
L_HDL_L	-0.010 (-0.248, 0.227)	-0.074 (-0.304, 0.156)	-.098 (-.333, 0.136)	-.103 (-.337, 0.131)	-.060 (-.297, 0.177)	-.054 (-.290, 0.182)
M_HDL_L	-0.196 (-0.428, 0.035)	-0.223 (-0.455, 0.009)	-.218 (-.454, 0.017)	-.224 (-.459, 0.011)	-.174 (-.409, 0.061)	-.154 (-.386, 0.077)
S_HDL_L	-0.188 (-0.428, 0.052)	-0.182 (-0.424, 0.059)	-.208 (-.453, 0.037)	-.217 (-.461, 0.027)	-.184 (-.428, 0.061)	-.180 (-.422, 0.061)

Table S65. Multivariable regression analyses of specific pesticides use with total lipid subclasses with standardised metabolomic biomarkers in women

Specific pesticides, β (95% CI), Females						
Total lipids	**Unadjusted**	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_L	0.328 (0.055, 0.601)	0.265 (0.0043, 0.527)	0.250 (-.013, 0.513)	0.237 (-.029, 0.504)	0.264 (-.005, 0.533)	0.269 (0.00021, 0.538)
XL_VLDL_L	0.239 (-0.052, 0.530)	0.172 (-0.108, 0.453)	0.145 (-.138, 0.428)	0.124 (-.162, 0.410)	0.146 (-.144, 0.435)	0.166 (-.123, 0.455)
L_VLDL_L	0.277 (-0.017, 0.570)	0.202 (-0.079, 0.483)	0.198 (-.086, 0.483)	0.179 (-.109, 0.467)	0.215 (-.077, 0.507)	0.231 (-.061, 0.523)
M_VLDL_L	0.293 (0.021, 0.565)	0.216 (-0.044, 0.475)	0.187 (-.075, 0.449)	0.171 (-.093, 0.436)	0.200 (-.067, 0.468)	0.219 (-.048, 0.486)
S_VLDL_L	0.320 (0.031, 0.609)	0.243 (-0.034, 0.519)	0.197 (-.082, 0.476)	0.164 (-.117, 0.445)	0.179 (-.104, 0.463)	0.178 (-.106, 0.462)
XS_VLDL_L	0.331 (0.037, 0.624)	0.276 (-0.011, 0.562)	0.206 (-.082, 0.495)	0.178 (-.112, 0.469)	0.194 (-.099, 0.486)	0.188 (-.105, 0.481)
IDL_L	0.235 (-0.059, 0.529)	0.202 (-0.088, 0.493)	0.114 (-.177, 0.406)	0.084 (-.209, 0.377)	0.105 (-.190, 0.400)	0.103 (-.192, 0.398)
L_LDL_L	0.221 (-0.079, 0.520)	0.188 (-0.108, 0.484)	0.097 (-.200, 0.394)	0.067 (-.231, 0.365)	0.098 (-.203, 0.398)	0.095 (-.206, 0.395)
M_LDL_L	0.225 (-0.079, 0.529)	0.189 (-0.111, 0.490)	0.101 (-.201, 0.403)	0.073 (-.229, 0.375)	0.107 (-.198, 0.412)	0.103 (-.202, 0.408)
S_LDL_L	0.221 (-0.077, 0.519)	0.185 (-0.109, 0.479)	0.103 (-.192, 0.399)	0.073 (-.223, 0.369)	0.107 (-.192, 0.407)	0.102 (-.197, 0.401)
XL_HDL_L	0.0097 (-0.256, 0.275)	0.068 (-0.192, 0.328)	0.054 (-.209, 0.316)	0.0083 (-.257, 0.274)	-.0069 (-.275, 0.261)	-.033 (-.298, 0.233)
L_HDL_L	-0.329 (-0.590, -0.068)	-0.256 (-0.508, -0.003)	-.276 (-.531, -.021)	-.319 (-.578, -.062)	-.358 (-.618, -.098)	-.358 (-.619, -.097)
M_HDL_L	-0.405 (-0.705, -0.106)	-0.374 (-0.673, -0.075)	-.397 (-.699, -.096)	-.415 (-.720, -.110)	-.461 (-.769, -.153)	-.437 (-.743, -.131)
S_HDL_L	-0.333 (-0.653, -0.014)	-0.339 (-0.659, -0.020)	-.402 (-.724, -.081)	-.424 (-.747, -.100)	-.454 (-.782, -.127)	-.447 (-.772, -.122)

Table S66. Multivariable regression analyses of specific pesticides use with total cholesterol subclasses with standardised metabolomic biomarkers in men

Specific pesticides, β (95% CI), Males						
Total cholesterol	**Unadjusted**	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_C	-0.037 (-0.268, 0.195)	0.039 (-0.188, 0.265)	0.033 (-.197, 0.263)	0.036 (-.194, 0.266)	0.036 (-.198, 0.271)	0.032 (-.202, 0.267)
XL_VLDL_C	-0.077 (-0.314, 0.159)	-0.007 (-0.238, 0.225)	-.023 (-.259, 0.212)	-.021 (-.257, 0.214)	-.015 (-.256, 0.225)	-.020 (-.260, 0.220)
L_VLDL_C	-0.076 (-0.311, 0.158)	-0.012 (-0.241, 0.217)	0.023 (-.211, 0.256)	0.022 (-.211, 0.256)	0.036 (-.202, 0.273)	0.035 (-.202, 0.273)
M_VLDL_C	-0.045 (-0.280, 0.191)	0.026 (-0.201, 0.254)	0.029 (-.202, 0.262)	0.029 (-.203, 0.262)	0.031 (-.206, 0.267)	0.028 (-.208, 0.264)
S_VLDL_C	-0.119 (-0.337, 0.099)	-0.054 (-0.267, 0.159)	-.074 (-.291, 0.144)	-.077 (-.294, 0.141)	-.084 (-.305, 0.138)	-.097 (-.317, 0.124)
XS_VLDL_C	-0.104 (-0.344, 0.136)	-0.051 (-0.289, 0.187)	-.103 (-.345, 0.139)	-.105 (-.347, 0.137)	-.122 (-.368, 0.123)	-.139 (-.384, 0.105)
IDL_C	-0.072 (-0.313, 0.169)	-0.032 (-0.273, 0.209)	-.099 (-.345, 0.145)	-.105 (-.349, 0.139)	-.124 (-.371, 0.124)	-.136 (-.383, 0.110)
L_LDL_C	-0.048 (-0.288, 0.193)	-0.008 (-0.249, 0.232)	-.074 (-.319, 0.169)	-.080 (-.324, 0.163)	-.102 (-.349, 0.146)	-.114 (-.359, 0.132)
M_LDL_C	-0.036 (-0.271, 0.199)	-0.0001 (-0.235, 0.235)	-.058 (-.297, 0.181)	-.064 (-.302, 0.174)	-.086 (-.328, 0.156)	-.098 (-.338, 0.143)
S_LDL_C	-0.046 (-0.281, 0.189)	-0.014 (-0.249, 0.221)	-.071 (-.310, 0.169)	-.077 (-.315, 0.162)	-.096 (-.339, 0.146)	-.107 (-.349, 0.134)
LDL_C	-0.043 (-0.278, 0.191)	-0.007 (-0.241, 0.228)	-.068 (-.307, 0.170)	-.074 (-.312, 0.164)	-.095 (-.336, 0.146)	-.107 (-.347, 0.133)
XL_HDL_C	0.053 (-0.192, 0.297)	0.018 (-0.223, 0.259)	-.024 (-.270, 0.222)	-.021 (-.267, 0.225)	0.0043 (-.247, 0.255)	-.012 (-.262, 0.238)
L_HDL_C	0.031 (-0.214, 0.276)	-0.038 (-0.274, 0.199)	-.064 (-.305, 0.177)	-.067 (-.308, 0.174)	-.027 (-.272, 0.217)	-.023 (-.268, 0.221)
M_HDL_C	-0.166 (-0.403, 0.071)	-0.204 (-0.440, 0.032)	-.194 (-.434, 0.046)	-.199 (-.439, 0.040)	-.155 (-.395, 0.085)	-.132 (-.368, 0.105)
S_HDL_C	-0.107 (-0.357, 0.143)	-0.105 (-0.358, 0.147)	-.142 (-.398, 0.115)	-.152 (-.406, 0.103)	-.145 (-.403, 0.112)	-.151 (-.406, 0.105)
HDL_C_	-0.096 (-0.323, 0.132)	-0.154 (-0.376, 0.068)	-.178 (-.404, 0.048)	-.184 (-.409, 0.042)	-.143 (-.369, 0.084)	-.139 (-.365, 0.087)
Serum C	-0.111 (-0.358, 0.135)	-0.082 (-0.330, 0.166)	-.141 (-.393, 0.111)	-.148 (-.399, 0.103)	-.147 (-.401, 0.108)	-.157 (-.409, 0.096)
Remnant C	-0.105 (-0.338, 0.128)	-0.041 (-0.269, 0.187)	-.083 (-.315, 0.149)	-.086 (-.318, 0.146)	-.095 (-.331, 0.141)	-.107 (-.342, 0.127)

Table S67. Multivariable regression analyses of specific pesticides use with total cholesterol subclasses with standardised metabolomic biomarkers in women

Specific pesticides, β (95% CI), Females						
Total cholesterol	**Unadjusted**	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
XXL_VLDL_C	0.368 (0.078, 0.657)	0.309 (0.029, 0.588)	0.284 (0.0019, 0.565)	0.266 (-.019, 0.551)	0.291 (0.0028, 0.579)	0.295 (0.0074, 0.583)
XL_VLDL_C	0.314 (0.017, 0.611)	0.248 (-.0391, 0.535)	0.214 (-.073, 0.501)	0.198 (-.092, 0.489)	0.231 (-.063, 0.525)	0.239 (-.054, 0.533)
L_VLDL_C	0.379 (0.077, 0.682)	0.306 (0.015, 0.597)	0.295 (0.00056, 0.589)	0.276 (-.022, 0.573)	0.307 (0.0054, 0.609)	0.313 (0.011, 0.615)
M_VLDL_C	0.356 (0.078, 0.634)	0.283 (0.017, 0.549)	0.237 (-.032, 0.506)	0.216 (-.055, 0.487)	0.243 (-.032, 0.517)	0.256 (-.019, 0.530)
S_VLDL_C	0.296 (0.0039, 0.587)	0.227 (-0.055, 0.508)	0.165 (-.119, 0.449)	0.134 (-.151, 0.419)	0.161 (-.127, 0.449)	0.155 (-.133, 0.443)
XS_VLDL_C	0.308 (0.013, 0.604)	0.261 (-0.030, 0.552)	0.195 (-.098, 0.488)	0.179 (-.116, 0.476)	0.207 (-.090, 0.504)	0.199 (-.098, 0.496)
IDL_C	0.221 (-0.078, 0.521)	0.190 (-0.107, 0.487)	0.103 (-.195, 0.401)	0.079 (-.221, 0.379)	0.109 (-.193, 0.411)	0.109 (-.193, 0.411)
L_LDL_C	0.216 (-0.087, 0.518)	0.183 (-0.116, 0.483)	0.095 (-.206, 0.396)	0.071 (-.232, 0.373)	0.109 (-.194, 0.414)	0.108 (-.196, 0.413)
M_LDL_C	0.211 (-0.092, 0.514)	0.179 (-0.121, 0.479)	0.098 (-.203, 0.399)	0.077 (-.225, 0.379)	0.121 (-.184, 0.425)	0.119 (-.185, 0.423)
S_LDL_C	0.212 (-0.086, 0.510)	0.180 (-0.115, 0.475)	0.106 (-.191, 0.403)	0.085 (-.213, 0.383)	0.129 (-.171, 0.429)	0.126 (-.175, 0.426)
LDL_C	0.212 (-0.086, 0.510)	0.180 (-0.115, 0.475)	0.097 (-.199, 0.394)	0.075 (-.223, 0.372)	0.116 (-.184, 0.415)	0.114 (-.186, 0.414)
XL_HDL_C	0.077 (-0.200, 0.353)	0.118 (-0.156, 0.392)	0.104 (-.173, 0.381)	0.061 (-.219, 0.341)	0.054 (-.229, 0.338)	0.018 (-.261, 0.297)
L_HDL_C	-0.291 (-0.535, -0.046)	-0.216 (-0.451, 0.018)	-.228 (-.465, 0.0086)	-.268 (-.508, -.028)	-.302 (-.543, -.059)	-.304 (-.546, -.062)
M_HDL_C	-0.438 (-0.729, -0.146)	-0.402 (-0.693, -0.111)	-.413 (-.707, -.119)	-.416 (-.713, -.119)	-.456 (-.756, -.157)	-.431 (-.729, -.133)
S_HDL_C	-0.136 (-0.428, 0.156)	-0.145 (-0.437, 0.146)	-.223 (-.516, 0.069)	-.243 (-.536, 0.049)	-.241 (-.538, 0.057)	-.242 (-.538, 0.053)
HDL_C_	-0.334 (-0.611, -.057)	-0.272 (-0.543, -0.00065)	-.305 (-.578, -.032)	-.352 (-.629, -.076)	-.387 (-.667, -.108)	-.387 (-.667, -.108)
Serum C	0.115 (-0.193, 0.424)	0.099 (-0.208, 0.405)	0.0068 (-.301, 0.314)	-.033 (-.342, 0.276)	-.016 (-.329, 0.298)	-.017 (-.330, 0.297)
Remnant C	0.313 (0.025, 0.601)	0.256 (-.025, 0.537)	0.181 (-.102, 0.463)	0.156 (-.128, 0.440)	0.187 (-.099, 0.474)	0.188 (-.098, 0.475)

Table S68. Multivariable regression analyses of specific pesticides use with apolipoproteins, aminoacids, sphingomyelins, glucose metabolism, fatty acids, inflammation, and fluid balance in men

Specific pesticides, β (95% CI), Males						
	Unadjusted	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
Apolipoproteins						
Apolipoprotein A1 [g/L]	-0.139 (-0.362, 0.084)	-0.169 (-0.392, 0.054)	-.191 (-.417, 0.036)	-.198 (-.424, 0.028)	-.158 (-.385, 0.069)	-.153 (-.379, 0.072)
Apolipoprotein B [g/L]	-0.103 (-0.338, 0.131)	-0.042 (-0.272, 0.187)	-.081 (-.315, 0.152)	-.086 (-.319, 0.147)	-.092 (-.329, 0.145)	-.102 (-.338, 0.134)
Ratio of Apo B/Apo A1	-0.007 (-0.229, 0.214)	0.071 (-0.139, 0.282)	0.048 (-.167, 0.262)	0.048 (-.167, 0.263)	0.016 (-.202, 0.233)	0.0029 (-.214, 0.220)
Amino acids						
Alanine [µmol/L]	-0.220 (-0.462, 0.021)	-0.181 (-0.421, 0.060)	-.089 (-.334, 0.154)	-.094 (-.337, 0.149)	-.090 (-.337, 0.157)	-.099 (-.346, 0.146)
Glutamine [µmol/L]	-0.064 (-0.316, 0.188)	-0.088 (-0.340, 0.165)	-.139 (-.396, 0.118)	-.149 (-.402, 0.103)	-.157 (-.412, 0.099)	-.146 (-.401, 0.109)
Glycine [µmol/L]	-0.082 (-0.286, 0.123)	-0.090 (-0.296, 0.115)	-.083 (-.292, 0.126)	-.087 (-.295, 0.121)	-.133 (-.343, 0.077)	-.152 (-.358, 0.054)
Histidine [µmol/L]	0.138 (-0.125, 0.402)	0.146 (-0.119, 0.410)	0.177 (-.092, 0.447)	0.178 (-.091, 0.447)	0.164 (-.108, 0.436)	0.171 (-.101, 0.443)
Branched-chain amino acids						
Isoleucine [µmol/L]	-0.212 (-0.435, 0.012)	-0.154 (-0.372, 0.064)	-.126 (-.348, 0.095)	-.128 (-.349, 0.094)	-.125 (-.351, 0.099)	-.128 (-.353, 0.096)
Leucine [µmol/L]	-0.194 (-0.412, 0.025)	-0.154 (-0.369, 0.061)	-.123 (-.341, 0.095)	-.128 (-.346, 0.089)	-.126 (-.348, 0.096)	-.135 (-.355, 0.086)
Valine [µmol/L]	-0.234 (-0.446, -0.022)	-0.208 (-0.419, 0.0029)	-.176 (-.389, 0.038)	-.179 (-.394, 0.034)	-.201 (-.419, 0.016)	-.207 (-.423, 0.0083)
Aromatic amino acids						
Phenylalanine [µmol/L]	0.092 (-0.137, 0.321)	0.143 (-0.079, 0.366)	0.121 (-.105, 0.348)	0.111 (-.113, 0.335)	0.072 (-.155, 0.299)	0.042 (-.179, 0.263)
Tyrosine [µmol/L]	-0.094 (-0.327, 0.139)	-0.061 (-0.291, 0.169)	-.025 (-.259, 0.209)	-.029 (-.262, 0.204)	-.035 (-.273, 0.202)	-.032 (-.269, 0.205)
Ketone bodies						
Acetoacetate [µmol/L]	-0.209 (-0.446, 0.027)	-0.231 (-0.469, 0.0067)	-.273 (-.515, -.032)	-.277 (-.518, -.035)	-.249 (-.493, -.0044)	-.246 (-.489, -.0015)
Acetate [µmol/L]	0.146 (-0.098, 0.389)	0.141 (-0.103, 0.386)	0.188 (-.061, 0.436)	0.186 (-.062, 0.434)	0.189 (-.064, 0.442)	0.183 (-.069, 0.435)

beta-hydroxybutyrate [µmol/L]	-0.152 (-0.381, 0.077)	-0.174 (-0.404, 0.055)	-.216 (-.449, 0.016)	-.223 (-.455, 0.0099)	-.197 (-.430, 0.037)	-.209 (-.442, 0.023)
Sphingolipids						
Sphingomyelin	-0.217 (-0.463, 0.029)	-0.208 (-0.457, 0.039)	-.259 (-.512, -.0068)	-.268 (-.519, -.017)	-.257 (-.511, -.0027)	-.263 (-.515, -.012)
Total choline	-0.197 (-0.426, 0.031)	-0.183 (-0.414, 0.047)	-.221 (-.455, 0.013)	-.228 (-.461, 0.0055)	-.198 (-.433, 0.037)	-.202 (-.435, 0.031)
Glycolysis related metabolites						
Citrate [µmol/L]	0.014 (-0.233, 0.262)	-0.013 (-0.263, 0.236)	-.025 (-.278, 0.228)	-.036 (-.287, 0.216)	-.062 (-.318, 0.193)	-.069 (-.323, 0.184)
Glucose [mmol/L]	-0.207 (-0.446, 0.033)	-.198 (-.439, 0.043)	-.231 (-.476, 0.014)	-.241 (-.484, 0.0022)	-.225 (-.471, 0.021)	-.224 (-.469, 0.020)
Glycerol [mmol/L]	0.213 (-0.036, 0.462)	0.189 (-0.062, 0.439)	0.178 (-.076, 0.432)	0.188 (-.066, 0.441)	0.207 (-.050, 0.465)	0.222 (-.035, 0.479)
Lactate [mmol/L]	-0.256 (-0.496, -0.016)	-0.241 (-0.482, 0.00021)	-.176 (-.421, 0.068)	-.178 (-.423, 0.068)	-.171 (-.419, 0.078)	-.188 (-.432, 0.056)
Pyruvate [mmol/L]	0.125 (-0.119, 0.369)	0.108 (-0.138, 0.354)	0.054 (-.195, 0.304)	0.059 (-.189, 0.309)	0.043 (-.210, 0.296)	0.040 (-.213, 0.293)
Fatty acids						
Total fatty acids [mmol/L]	-0.221 (-0.459, 0.017)	-0.176 (-0.412, 0.061)	-.193 (-.433, 0.048)	-.198 (-.438, 0.042)	-.168 (-.412, 0.075)	-.173 (-.415, 0.069)
Monounsaturated fatty acids [mmol/L]	-0.271 (-0.506, -0.037)	-0.219 (-0.449, 0.012)	-.217 (-.451, 0.018)	-.219 (-.454, 0.015)	-.186 (-.423, 0.050)	-.189 (-.425, 0.046)
Saturated fatty acids [mmol/L]	-0.074 (-0.309, 0.162)	-0.028 (-0.262, 0.205)	-.077 (-.315, 0.160)	-.082 (-.319, 0.155)	-.056 (-.297, 0.184)	-.063 (-.302, 0.175)
Inflammation						
Alpha-1-acid glycoprotein [mmol/L]	-0.305 (-0.551, -0.058)	-0.264 (-0.507, -0.019)	-.253 (-.501, -.0049)	-.260 (-.507, -.014)	-.259 (-.510, -.0084)	-.262 (-.511, -.013)
Fluid balance						
Creatinine [µmol/L]	-0.097 (-0.414, 0.219)	-0.093 (-0.411, 0.224)	-.028 (-.351, 0.295)	-.031 (-.352, 0.291)	-.045 (-.373, 0.283)	-.041 (-.369, 0.287)
Albumin [standardized concentration units]	-0.157 (-0.425, 0.109)	-0.163 (-0.433, 0.107)	-.193 (-.468, 0.083)	-.202 (-.475, 0.072)	-.207 (-.486, 0.071)	-.207 (-.483, 0.069)

Table S69. Multivariable regression analyses of specific pesticides use with apolipoproteins, aminoacids, sphingomyelins, glucose metabolism, fatty acids, inflammation, and fluid balance in women

Specific pesticides, β (95% CI), Females						
	Unadjusted	**+ BMI**	**+ SEP**	**+ season of pesticide use**	**+ alcohol consumption**	**+ latitude of residence**
Apolipoproteins						
Apolipoprotein A1 [g/L]	-.307 (-.612, -.0015)	-.262 (-.565, 0.041)	-.319 (-.624, -.013)	-.370 (-.678, -.062)	-.399 (-.712, -.087)	-.393 (-.706, -.080)
Apolipoprotein B [g/L]	0.298 (0.012, 0.583)	0.242 (-.036, 0.519)	0.162 (-.116, 0.441)	0.136 (-.145, 0.416)	0.170 (-.113, 0.453)	0.173 (-.109, 0.456)
Ratio of Apo B/Apo A1	0.491 (0.216, 0.765)	0.407 (0.146, 0.668)	0.369 (0.105, 0.632)	0.377 (0.111, 0.644)	0.429 (0.163, 0.696)	0.428 (0.161, 0.695)
Amino acids						
Alanine [µmol/L]	0.172 (-0.124, 0.468)	0.134 (-0.159, 0.427)	0.128 (-.167, 0.424)	0.100 (-.198, 0.398)	0.082 (-.221, 0.384)	0.076 (-.225, 0.378)
Glutamine [µmol/L]	-0.146 (-0.434, 0.142)	-0.135 (-0.423, 0.153)	-.177 (-.468, 0.114)	-.157 (-.450, 0.136)	-.121 (-.418, 0.176)	-.096 (-.389, 0.197)
Glycine [µmol/L]	-0.210 (-0.559, 0.139)	-0.217 (-0.566, 0.131)	-.316 (-.667, 0.034)	-.303 (-.656, 0.050)	-.262 (-.621, 0.097)	-.283 (-.639, 0.073)
Histidine [µmol/L]	-0.019 (-0.314, 0.276)	-0.011 (-0.305, 0.283)	0.071 (-.224, 0.367)	0.064 (-.236, 0.363)	0.044 (-.259, 0.348)	0.052 (-.252, 0.356)
Branched-chain amino acids						
Isoleucine [µmol/L]	0.051 (-0.217, 0.319)	-0.020 (-0.279, 0.238)	-.027 (-.289, 0.234)	-.0035 (-.268, 0.261)	0.051 (-.217, 0.319)	0.064 (-.203, 0.331)
Leucine [µmol/L]	-0.010 (-0.279, 0.259)	-0.076 (-0.338, 0.186)	-.089 (-.354, 0.174)	-.082 (-.348, 0.184)	-.066 (-.336, 0.204)	-.071 (-.339, 0.198)
Valine [µmol/L]	-0.144 (-0.426, 0.137)	-0.206 (-0.482, 0.069)	-.201 (-.479, 0.076)	-.174 (-.453, 0.106)	-.147 (-.431, 0.138)	-.141 (-.422, 0.141)
Aromatic amino acids						
Phenylalanine [µmol/L]	0.310 (0.0085, 0.612)	0.244 (-0.049, 0.538)	0.175 (-.120, 0.469)	0.156 (-.139, 0.452)	0.118 (-.181, 0.417)	0.094 (-.200, 0.389)
Tyrosine [µmol/L]	0.090 (-0.198, 0.378)	0.045 (-0.240, 0.330)	0.026 (-.262, 0.313)	0.032 (-.259, 0.323)	0.012 (-.283, 0.306)	0.036 (-.256, 0.327)
Ketone bodies						
Acetoacetate [µmol/L]	-0.280 (-0.587, 0.027)	-0.270 (-0.578, 0.037)	-.318 (-.629, -.0074)	-.351 (-.666, -.037)	-.369 (-.687, -.052)	-.362 (-.678, -.045)
Acetate [µmol/L]	-0.215 (-0.507, 0.078)	-0.213 (-0.507, 0.080)	-.244 (-.538, 0.050)	-.256 (-.553, 0.041)	-.269 (-.570, 0.031)	-.270 (-.570, 0.029)

beta-hydroxybutyrate [μmol/L]	-0.205 (-0.531, 0.121)	-0.201 (-0.527, 0.125)	-.263 (-.589, 0.064)	-.304 (-.634, 0.027)	-.299 (-.632, 0.035)	-.315 (-.648, 0.017)
Sphingolipids						
Sphingomyelin	-0.046 (-0.358, 0.266)	-0.047 (-0.358, 0.264)	-.137 (-.449, 0.175)	-.189 (-.503, 0.124)	-.187 (-.506, 0.131)	-.184 (-.503, 0.134)
Total choline	-0.049 (-0.359, 0.261)	-0.046 (-0.355, 0.263)	-.121 (-.432, 0.189)	-.175 (-.488, 0.138)	-.192 (-.510, 0.126)	-.188 (-.506, 0.131)
Glycolysis related metabolites						
Citrate [μmol/L]	0.109 (-0.186, 0.406)	0.119 (-0.177, 0.416)	0.117 (-.182, 0.416)	0.078 (-.224, 0.379)	0.082 (-.223, 0.388)	0.092 (-.210, 0.395)
Glucose [mmol/L]	-.235 (-.545, 0.075)	-.247 (-.557, 0.064)	-.312 (-.624, 0.00029)	-.284 (-.596, 0.029)	-.278 (-.596, 0.039)	-.257 (-.572, 0.059)
Glycerol [mmol/L]	0.240 (-0.057, 0.538)	0.264 (-0.032, 0.561)	0.301 (0.0015, 0.601)	0.297 (-.0057, 0.599)	0.291 (-.016, 0.598)	0.326 (0.019, 0.632)
Lactate [mmol/L]	0.071 (-0.227, 0.369)	0.037 (-0.259, 0.333)	0.046 (-.253, 0.345)	0.038 (-.265, 0.341)	-.005 (-.312, 0.301)	-.020 (-.320, 0.280)
Pyruvate [mmol/L]	0.018 (-0.279, 0.315)	0.049 (-0.246, 0.345)	0.048 (-.251, 0.346)	0.031 (-.270, 0.333)	0.072 (-.234, 0.378)	0.081 (-.225, 0.387)
Fatty acids						
Total fatty acids [mmol/L]	0.109 (-0.195, 0.414)	0.079 (-0.221, 0.381)	0.0082 (-.295, 0.311)	-.043 (-.348, 0.262)	-.055 (-.365, 0.254)	-.051 (-.361, 0.258)
Monounsaturated fatty acids [mmol/L]	0.200 (-0.093, 0.493)	0.149 (-0.137, 0.437)	0.091 (-.198, 0.380)	0.037 (-.254, 0.329)	0.015 (-.279, 0.309)	0.018 (-.277, 0.313)
Saturated fatty acids [mmol/L]	0.117 (-0.191, 0.425)	0.093 (-0.212, 0.398)	0.012 (-.295, 0.318)	-.039 (-.349, 0.269)	-.054 (-.367, 0.259)	-.049 (-.363, 0.264)
Inflammation						
Alpha-1-acid glycoprotein [mmol/L]	-0.0075 (-0.302, 0.287)	-0.073 (-0.359, 0.213)	-.130 (-.418, 0.158)	-.154 (-.442, 0.134)	-.168 (-.460, 0.125)	-.161 (-.452, 0.130)
Fluid balance						
Creatinine [μmol/L]	-0.012 (-0.205, 0.182)	-0.0087 (-0.203, 0.186)	0.017 (-.179, 0.213)	0.016 (-.182, 0.214)	0.0067 (-.195, 0.208)	0.015 (-.186, 0.216)
Albumin [standardized concentration units]	-0.336 (-0.612, -0.060)	-0.327 (-0.603, -0.051)	-.394 (-.672, -.117)	-.376 (-.653, -.099)	-.378 (-.660, -.096)	-.374 (-.653, -.095)