Nutritional Composition of Organically and Conventionally Produced Crops and Crop based Foods: A systematic Literature review and Meta-analyses

SUPPLEMENTARY DATA

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1. LITERATURE REVIEW

Supplementary Tables 1 to 8 and Supplementary Figures 1 to 2 provide detailed information on the comparison studies, types of data extracted, data sources and characteristics.

Table 1. List of relevant crops and foods used as terms of initial search of the literature

acerola, apple, apricot, arugula, asparagus, banana, barley, basil, bean, beet, beetroot, black currant, blueberry, broccoli, buckwheat, cabbage, canola, carrot, cauliflower, celeriac, celery, cereals, chard, chickpea, chicory, clementine, cocoa, coconut, coffee, collard, corn, courgettes, cucumber, diet, eggplant, endive, feed, fruit, garlic, grape, grapefruit, hop, kale, kiwifruit, leek, lemon, lentils, lettuce, lime, maize, mandarin, mango, marionberry, marjoram, melon, muskmelon, mustard, oat, olive, onion, orange, pac choi, papaya, parsley, parsnip, passion fruit, pea, peach, pear, pecan, pepper, persimmon, pineapple, plum, potato, pumpkin, radish, raspberry, rice, rocket, rye, savory, sesame, soybean, spinach, squash, strawberry, sunflower, tangerine, tea, thyme, tomato, triticale, vegetable, watercress, wheat, yedikule, zucchini

Table 2. List of comparison studies included in the meta-analysis.

ID	Reference	SA*
9	Abreu, P.; Relva, A.; Matthew, S.; Gomes, Z.; Morais, Z. High-performance liquid chromatographic determination of glycoalkaloids in potatoes from conventional, integrated, and organic crop systems. Food Control 2007, 18 (1), 40-44.	
313	Acharya, T.; Bhatnagar, V. Quality assessment of organic and conventional Nagpur mandarins (Citrus reticulata). Indian J. Nutr. Diet. 2007, 44, 403-406.	+
107	Akcay, Y. D.; Yildirim, H. K.; Guvenc, U.; Sozmen, E. Y. The effects of consumption of organic and nonorganic red wine on low-density lipoprotein oxidation and antioxidant capacity in humans. Nutr. Res. 2004, 24 (7), 541-554.	
482	Aldrich, H. T.; Salandanan, K.; Kendall, P.; Bunning, M.; Stonaker, F.; Kuelen, O.; Stushnoff, C. Cultivar choice provides options for local production of organic and conventionally produced tomatoes with higher quality and antioxidant content. J. Sci. Food Agric. 2010, 90 (15), 2548-2555.	+
154	Alvarez, C. E.; Carracedo, A. E.; Iglesias, E.; Martinez, M. C. Pineapples cultivated by conventional and organic methods in a soil from a banana plantation - a comparative study of soil fertility, plant nutrition and yields. Biol. Agric. Hortic. 1993, 9, 161-171.	
449	Alvito, P.; Oliveira, L.; Alcobia, D.; Capucho, S.; Fonseca, C.; Vasconcelos, L.; Calhau, M. A. A comparative study on organic and conventional farming in Portugal - results on contaminant levels in vegetables. Rev. Aliment. Hum. 2004, 1, 27-32.	
124	Amarante, C. V. T.; Steffens, C. A.; Mafra, A. L.; Albuquerque, J. A. Yield and fruit quality of apple from conventional and organic production systems. Pesqu. Agropecu. Bras. 2008, 43 (3), 333-340.	
29	Amodio, M. L.; Colelli, G.; Hasey, J. K.; Kader, A. A. A comparative study of composition and postharvest performance of organically and conventionally grown kiwifruits. J. Sci. Food Agric. 2007, 87 (7), 1228-1236.	
104	Amor, F. M. d.; Serrano-Martinez, A.; Fortea, I.; Nunez-Delicado, E. Differential effect of organic cultivation on the levels of phenolics, peroxidase and capsidiol in sweet peppers. J. Sci. Food Agric. 2008, 88 (5), 770-777.	

ID, Paper unique identification number. *Papers included in standard weighted meta-analysis: +; †Paper included in meta-analysis of frequency of detectable pesticide residues.

Table 2 cont. List of comparison studies included in the meta-analysis.

ID	Reference	SA*
623†	Amvrazi, E. G.; Albanis, T. A., Pesticide residue assessment in different types of olive oil and preliminary exposure assessment of Greek consumers to the pesticide residues detected. In Food Chem., 2009; Vol. 113, pp 253-261.	+
622[c]	Andersen, J. H.; Poulsen, M. E., Results from the monitoring of pesticide residues in fruit and vegetables on the Danish market, 1998-99. In Food Addit. Contam., 2001; Vol. 18, pp 906-931.	+
306	Andjelkovic, M.; Acun, S.; Van Hoed, V.; Verhe, R.; Van Camp, J. Chemical Composition of Turkish Olive Oil-Ayvalik. J. Am. Oil Chem. Soc. 2009, 86 (2), 135-140.	
108	Annett, L. E.; Spaner, D.; Wismer, W. V. Sensory profiles of bread made from paired samples of organic and conventionally grown wheat grain. J. Food Sci. 2007, 72 (4), S254-S260.	+
32	Anttonen, M. J.; Hoppula, K. I.; Nestby, R.; Verheul, M. J.; Karjalainen, R. O. Influence of fertilization, mulch color, early forcing, fruit order, planting date, shading, growing environment, and genotype on the contents of selected phenolics in strawberry (Fragaria x ananassa Duch.) fruits. J. Agric. Food Chem. 2006, 54 (7), 2614-2620.	+
30	Anttonen, M. J.; Karjalainen, R. O. High-performance liquid chromatography analysis of black currant (Ribes nigrum L.) fruit phenolics grown either conventionally or organically. J. Agric. Food Chem. 2006, 54 (20), 7530-7538.	+
307	Arbos, K. A.; De Freitas, R. J. S.; Sterz, S. C.; Dornas, M. F. Influence of the Organic and Conventional Cultivation Systems on the Antioxidant Activity of Vegetables. Bol. CEPPA 2009, 27 (1), 53-58.	
14	Asami, D. K.; Hong, Y. J.; Barrett, D. M.; Mitchell, A. E. Comparison of the total phenolic and ascorbic acid content of freeze-dried and air-dried marionberry, strawberry, and corn grown using conventional, organic, and sustainable agricultural practices. J. Agric. Food Chem. 2003, 51 (5), 1237-1241.	
110	Bacchi, M. A.; Fernandes, E. A. D.; Tsai, S. M.; Santos, L. G. C. Conventional and organic potatoes: Assessment of elemental composition using k(0)-INAA. J. Radioanal. Nucl. Chem. 2004, 259 (3), 421-424.	
619†	Baker, B. P.; Benbrook, C. M.; Groth, E.; Benbrook, K. L., Pesticide residues in conventional, integrated pest management (IPM)-grown and organic foods: insights from three US data sets. In Food Addit. Contam. Part A: Chem., Anal., Control, 2002; Vol. 19, pp 427-446.	+
15	Barrett, D. M.; Weakley, C.; Diaz, J. V.; Watnik, M. Qualitative and nutritional differences in processing tomatoes grown under commercial organic and conventional production systems. J. Food Sci. 2007, 72 (9), C441-C451.	
290	Basker, D. Comparison of taste quality between organically and conventionally grown fruits and vegetables. Am. J. Alternative Agr. 1992, 7, 129-136.	
484	Bavec, M.; Turinek, M.; Grobelnik-Mlakar, S.; Slatnar, A.; Bavec, F. Influence of Industrial and Alternative Farming Systems on Contents of Sugars, Organic Acids, Total Phenolic Content, and the Antioxidant Activity of Red Beet (Beta vulgaris L. ssp. vulgaris Rote Kugel). J. Agric. Food Chem. 2010, 58 (22), 11825-11831.	+
66	Baxter, G. J.; Graham, A. B.; Lawrence, J. R.; Wiles, D.; Paterson, J. R. Salicylic acid in soups prepared from organically and non-organically grown vegetables. Eur. J. Nutr. 2001, 40 (6), 289-292.	+
17	Beltran-Gonzalez, F.; Perez-Lopez, A. J.; Lopez-Nicolas, J. M.; Carbonell-Barrachina, A. A. Effects of agricultural practices on instrumental colour, mineral content, carotenoid composition, and sensory quality of mandarin orange juice, cv. Hernandina. J. Sci. Food Agric. 2008, 88 (10), 1731-1738.	+
308	Bender, I.; Ess, M.; Matt, D.; Moor, U.; Tonutare, T.; Luik, A. Quality of organic and conventional carrots. Agron. Res. 2009, 7 (Sp. Iss. 2), 572-577.	
111	Benge, J. R.; Banks, N. H.; Tillman, R.; De Silva, H. N. Pairwise comparison of the storage potential of kiwifruit from organic and conventional production systems. N. Z. J. Crop Hortic. Sci. 2000, 28 (2), 147-152.	+

ID, Paper unique identification number. *Papers included in standard weighted meta-analysis: +; †Paper included in meta-analysis of frequency of detectable pesticide residues.

Table 2 cont. List of comparison studies included in the meta-analysis.

ID	Reference	SA*
156	Bicanova, E.; Capouchova, I.; Krejicova, L.; Petr, J.; Erhartova, D. The effect of growth structure on organic winter wheat quality. Zemdirb. Mokslo Darb. 2006, 93, 297-305.	
438	Borguini, R. G.; da Silva, M. V. Nutrient contents of tomatoes from organic and conventional cultivation. Aliment. Nutr. 2007, 21, 41-46.	
276	Borguini, R. G.; da Silva, M. V. Physical chemical and seasonal characteristics of organic tomato in comparison to the conventional tomato. Aliment. Nutr. 2005, 16, 355-361.	
254	Borowczak, F.; Grzes, S.; Rebarz, K. Influence of irrigation and cultivation system of potatoes on the yields, chemical composition of tubers and uptake of nutrient components. J. Res. Appl. Agric. Eng. 2003, 48 (3), 33-37.	
67	Briviba, K.; Stracke, B. A.; Rufer, C. E.; Watzl, B.; Weibel, F. P.; Bub, A. Effect of consumption of organically and conventionally produced apples on antioxidant activity and DNA damage in humans. J. Agric. Food Chem. 2007, 55 (19), 7716-7721.	+
78	Bursać Kovacevic, D.; Vahcic, N.; Levaj, B.; Uzelac, V. D. The effect of cultivar and cultivation on sensory profiles of fresh strawberries and their purees. Flavour Fragr. J. 2008, 23 (5), 323-332.	
580	Camargo, L. K. P.; Resende, J. T. V.; Tominaga, T. T.; Kurchaidt, S. M.; Camargo, C. K.; Figueiredo, A. S. T. Postharvest quality of strawberry fruits produced in organic and conventional systems. Hortic. Bras. 2011, 29 (4), 577-583.	
16	Camin, F.; Moschella, A.; Miselli, F.; Parisi, B.; Versini, G.; Ranalli, P.; Bagnaresi, P. Evaluation of markers for the traceability of potato tubers grown in an organic versus conventional regime. J. Sci. Food Agric. 2007, 87 (7), 1330-1336.	
524	Camin, F.; Perini, M.; Bontempo, L.; Fabroni, S.; Faedi, W.; Magnani, S.; Baruzzi, G.; Bonoli, M.; Tabilio, M. R.; Musmeci, S.; Rossmann, A.; Kelly, S. D.; Rapisarda, P. Potential isotopic and chemical markers for characterising organic fruits. Food Chem. 2011, 125 (3), 1072-1082.	+
38	Carbonaro, M.; Mattera, M. Polyphenoloxidase activity and polyphenol levels in organically and conventionally grown peach (Prunus persica L., cv. Regina bianca) and pear (Pyrus communis L., cv. Williams). Food Chem. 2001, 72 (4), 419-424.	+
39	Carbonaro, M.; Mattera, M.; Nicoli, S.; Bergamo, P.; Cappelloni, M. Modulation of antioxidant compounds in organic vs conventional fruit (peach, Prunus persica L., and pear, Pyrus communis L.). J. Agric. Food Chem. 2002, 50 (19), 5458-5462.	+
310	Carcea, M.; Salvatorelli, S.; Turfani, V.; Mellara, F. Influence of growing conditions on the technological performance of bread wheat (Triticum aestivum L.). Int. J. Food Sci. Technol. 2006, 41, 102-107.	
525	Cardoso, P. C.; Tomazini, A. P. B.; Stringheta, P. C.; Ribeiro, S. M. R.; Pinheiro-Sant'Ana, H. M. Vitamin C and carotenoids in organic and conventional fruits grown in Brazil. Food Chem. 2011, 126 (2), 411-416.	+
40	Caris-Veyrat, C.; Amiot, M. J.; Tyssandier, V.; Grasselly, D.; Buret, M.; Mikolajczak, M.; Guilland, J. C.; Bouteloup-Demange, C.; Borel, P. Influence of organic versus conventional agricultural practice on the antioxidant microconstituent content of tomatoes and derived purees. Consequences on antioxidant plasma status in humans. J. Agric. Food Chem. 2004, 52 (21), 6503-6509.	+
283	Caussiol, L. P.; Joyce, D. C. Characteristics of banana fruit from nearby organic versus conventional plantations: A case study. J. Hortic. Sci. Biotechnol. 2004, 79 (5), 678-682.	
12	Cayuela, J. A.; Vidueira, J. M.; Albi, M. A.; Gutierrez, F. Influence of the ecological cultivation of strawberries (Fragaria x Ananassa Cv Chandler) on the quality of the fruit and on their capacity for conservation. J. Agric. Food Chem. 1997, 45 (5), 1736-1740.	+
537	Champagne, E. T.; Bett-Garber, K. L.; Grimm, C. C.; McClung, A. M. Effects of organic fertility management on physicochemical properties and sensory quality of diverse rice cultivars. Cereal Chem. 2007, 84 (4), 320-327.	

ID, Paper unique identification number. *Papers included in standard weighted meta-analysis: +; †Paper included in meta-analysis of frequency of detectable pesticide residues.

Table 2 cont. List of comparison studies included in the meta-analysis.

ID	Reference	SA*
295	Chang, P.; Salomon, M. Metals in grains sold under various label - organic, natural, conventional. J. Food Qual. 1977, 1, 373-377.	
13	Chassy, A. W.; Bui, L.; Renaud, E. N. C.; Van Horn, M.; Mitchell, A. E. Three-year comparison of the content of antioxidant microconstituents and several quality characteristics in organic and conventionally managed tomatoes and bell peppers. J. Agric. Food Chem. 2006, 54 (21), 8244-8252.	+
33	Chinnici, F.; Bendini, A.; Gaiani, A.; Riponi, C. Radical scavenging activities of peels and pulps from cv. golden delicious apples as related to their phenolic composition. J. Agric. Food Chem. 2004, 52 (15), 4684-4689.	+
490	Citak, S.; Sonmez, S. Effects of conventional and organic fertilization on spinach (Spinacea oleracea L.) growth, yield, vitamin C and nitrate concentration during two successive seasons. Sci. Hortic. 2010, 126 (4), 415-420.	+
489	Citak, S.; Sonmez, S. Influence of Organic and Conventional Growing Conditions on the Nutrient Contents of White Head Cabbage (Brassica oleracea var. capitata) during Two Successive Seasons. J. Agric. Food Chem. 2010, 58 (3), 1788-1793.	
118	Citak, S.; Sonmez, S. Mineral Contents of Organically and Conventionally Grown Spinach (Spinacea oleracea L.) during Two Successive Seasons. J. Agric. Food Chem. 2009, 57 (17), 7892-7898.	
294	Clarke, R. P.; Merrow, S. B. Nutrient composition of tomatoes homegrown under different cultural procedures. Ecol. Food Nutr. 1979, 8, 37-49.	+
119	Colla, G.; Mitchell, J. P.; Joyce, B. A.; Huyck, L. M.; Wallender, W. W.; Temple, S. R.; Hsiao, T. C.; Poudel, D. D. Soil physical properties and tomato yield and quality in alternative cropping systems. Agron. J. 2000, 92 (5), 924-932.	
120	Colla, G.; Mitchell, J. P.; Poudel, D. D.; Saccardo, F. In Impacts of farming systems and soil characteristics on processing tomato fruit quality, 7th International Symposium on the Processing Tomato, Sacramento, Ca, USA, June 10-13; Hartz, T. K., Ed. Sacramento, Ca, USA, 2001; pp 333-341.	
273	Colla, G.; Mitchell, J. P.; Poudel, D. D.; Temple, S. R. Changes of tomato yield and fruit elemental composition in conventional, low input, and organic systems. J. Sustain. Agric. 2002, 20 (2), 53-67.	+
624†	Collins, M.; Nassif, W., Pesticide residues in organically and conventionally grown fruit and vegetables in New South Wales, 1990-91. In Food Australia: official journal of CAFTA and AIFST, 1993; Vol. Sept 1993. v. 45 (9).	+
526	Cooper, J.; Sanderson, R.; Cakmak, I.; Ozturk, L.; Shotton, P.; Carmichael, A.; Haghighi, R. S.; Tetard-Jones, C.; Volakakis, N.; Eyre, M.; Leifert, C. Effect of Organic and Conventional Crop Rotation, Fertilization, and Crop Protection Practices on Metal Contents in Wheat (Triticum aestivum). J. Agric. Food Chem. 2011, 59 (9), 4715-4724.	+
491	Corrales, M.; Fernandez, A.; Vizoso Pinto, M. G.; Butz, P.; Franz, C. M. A. P.; Schuele, E.; Tauscher, B. Characterization of phenolic content, in vitro biological activity, and pesticide loads of extracts from white grape skins from organic and conventional cultivars. Food Chem. Toxicol. 2010, 48 (12), 3471-3476.	+
259	Dahlstedt, L.; Dlouhy, J. Other nutritional compounds in different foods. Var Foda 1995, 47 (8), 45-51.	
311	Damatto, E. R.; Boas, R. L. V.; Leonel, S.; Cabrera, J. C.; Sauco, V. G. Banana Production under Different Conditions in Tenerife Island. Rev. Bras. Frutic. 2009, 31 (2), 596-601.	
6	Dani, C.; Oliboni, L. S.; Vanderlinde, R.; Bonatto, D.; Salvador, M.; Henriques, J. A. P. Phenolic content and antioxidant activities of white and purple juices manufactured with organically- or conventionally-produced grapes. Food Chem. Toxicol. 2007, 45 (12), 2574-2580.	
279	Danilchenko, H. Effect of growing method on the quality of pumpkins and pumpkin products. Folia Hortic. 2002, 14, 103-112.	

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Table 2 cont. List of comparison studies included in the meta-analysis.

ID	Reference	SA*
298	Daood, H. G.; Tomoskozi-Farkas, R.; Kapitany, J. Antioxidant content of bio and conventional spice red pepper (Capsicum annuum L.) as determined by HPLC. Acta Agron. Hung. 2006, 54, 133-140.	
121	De Martin, S.; Restani, P. Determination of nitrates by a novel ion chromatographic method: occurrence in leafy vegetables (organic and conventional) and exposure assessment for Italian consumers. Food Addit. Contam. Part A: Chem., Anal., Control 2003, 20 (9), 787-792.	+
270	DeEll, J. R.; Prange, R. K. Postharvest physiological disorders, diseases and mineral concentrations of organically and conventionally grown McIntosh and Cortland apples. Can. J. Plant Sci. 1993, 73 (1), 223-230.	+
269	DeEll, J. R.; Prange, R. K. Postharvest quality and sensory attributes of organically and conventionally grown apples. Hortscience 1992, 27 (10), 1096-1099.	
68	Del Amor, F. M. Yield and fruit quality response of sweet pepper to organic and mineral fertilization. Renew. Agric. Food Syst. 2007, 22 (3), 233-238.	+
253	Demir, H.; Gölükcü, M.; Topuz, A.; Özdemr, F.; Polat, E.; Sahn, H. The effect of different organic fertilizers on the mineral contents of Yedikule and Iceberg lettuce types grown in organic farming. Zir. Fakult. Derg. Akd. Univ. 2003, 16 (1), 79-85.	+
550	Demirkol, O.; Cagri-Mehmetoglu, A. Biologically important thiols in various organically and conventionally grown vegetables. J. Food Nutr. Res. 2008, 47 (2), 77-84.	+
431	D'Evoli, L.; Tarozzi, A.; Hrelia, P.; Lucarini, M.; Cocchiola, M.; Gabrielli, P.; Franco, F.; Morroni, F.; Cantelli-Forti, G.; Lombardi-Boccia, G. Influence of Cultivation System on Bioactive Molecules Synthesis in Strawberries: Spin-off on Antioxidant and Antiproliferative Activity. J. Food Sci. 2010, 75 (1), 94-99.	
123	Dimberg, L. H.; Gissen, C.; Nilsson, J. Phenolic compounds in oat grains (Avena sativa L.) grown in conventional and organic systems. Ambio 2005, 34 (4-5), 331-337.	
527	do Carmo Carvalho, D.; Brigagao, M. R. P. L.; Dos Santos, M. H.; de Paula, F. B. A.; Giusti-Paiva, A.; Azevedo, L. Organic and Conventional Coffea arabica L.: A Comparative Study of the Chemical Composition and Physiological, Biochemical and Toxicological Effects in Wistar Rats. Plant Foods Hum. Nutr. 2011, 66 (2), 114-21.	
505	dos Santos, J. S.; dos Santos, M. L. P.; Conti, M. M. Comparative Study of Metal Contents in Brazilian Coffees Cultivated by Conventional and Organic Agriculture Applying Principal Component Analysis. J. Braz. Chem. Soc. 2010, 21, 1468-1476.	+
430	Durazzo, A.; Azzini, E.; Foddai, M. S.; Nobili, F.; Garaguso, I.; Raguzzini, A.; Finotti, E.; Tisselli, V.; Del Vecchio, S.; Piazza, C.; Perenzin, M.; Plizzari, L.; Maiani, G. Influence of different crop management practices on the nutritional properties and benefits of tomato -Lycopersicon esculentum cv Perfectpeel-. Int. J. Food Sci. Technol. 2010, 45, 2637-2644.	
292	Eltun, R. The Apelsvoll cropping system experiment III. Yield and grain quality of cereals. Nor. J. Agric. Sci. 1996, 10, 7-22.	
163	Eurola, M.; Hietaniemi, V.; Kontturi, M.; Tuuri, H.; Kangas, A.; Niskanen, M.; Saastamoinen, M. Selenium content of Finnish oats in 1997-1999: effect of cultivars and cultivation techniques. Agr. Food Sci. 2004, 13, 46-53.	
126	Eurola, M.; Hietaniemi, V.; Kontturi, M.; Tuuri, H.; Pihlava, J. M.; Saastamoinen, M.; Rantanen, O.; Kangas, A.; Niskanen, M. Cadmium contents of oats (Avena sativa L.) in official variety, organic cultivation, and nitrogen fertilization trials during 1997-1999. J. Agric. Food Chem. 2003, 51 (9), 2608-2614.	
492	Faller, A. L. K.; Fialho, E. Polyphenol content and antioxidant capacity in organic and conventional plant foods. J. Food Compos. Anal. 2010, 23 (6), 561-568.	+
70	Faller, A. L. K.; Fialho, E. The antioxidant capacity and polyphenol content of organic and conventional retail vegetables after domestic cooking. Food Res. Int. 2009, 42 (1), 210-215.	
62	Fauriel, J.; Bellon, S.; Plenet, D.; M.-J., A. In On-farm influence of production patterns on total polyphenol content in peach, 3rd QLIF Congress: Improving Sustainability in Organic and Low Input Food Production Systems, University of Hohenheim, Stuttgart, Germany, March 20-23; University of Hohenheim, Stuttgart, Germany, 2007.	

ID, Paper unique identification number. *Papers included in standard weighted meta-analysis: +; †Paper included in meta-analysis of frequency of detectable pesticide residues.

Table 2 cont. List of comparison studies included in the meta-analysis.

ID	Reference	SA*
18	Ferreres, F.; Valentao, P.; Llorach, R.; Pinheiro, C.; Cardoso, U.; Pereira, J. A.; Sousa, C.; Seabra, R. M.; Andrade, P. B. Phenolic compounds in external leaves of tronchuda cabbage (Brassica oleracea L. var. costata DC). J. Agric. Food Chem. 2005, 53 (8), 2901-2907.	+
127	Fischer, I. H.; De Arruda, M. C.; De Almeida, A. M.; Garcia, M.; Jeronim, E. M.; Pinott, R. N.; Bertani, R. Postharvest diseases and physical chemical characteristics of yellow passion fruit from organic and conventional crops in the midwest region of Sao Paulo State. Rev. Bras. Frutic. 2007, 29 (2), 254-259.	
19	Fjelkner-Modig, S.; Bengtsson, H.; Stegmark, R.; Nystrom, S. The influence of organic and integrated production on nutritional, sensory and agricultural aspects of vegetable raw materials for food production. Acta Agric. Scand. Sect. B Soil Plant Sci. 2000, 50 (3-4), 102-113.	
312	Flores, P.; Hellin, P.; Lacasa, A.; Lopez, A.; Fenoll, J. Pepper mineral composition and sensory attributes as affected by agricultural management. J. Sci. Food Agric. 2009, 89 (14), 2364-2371.	
128	Forster, M. P.; Rodriguez, E. R.; Martin, J. D.; Romero, C. D. Statistical differentiation of bananas according to their mineral composition. J. Agric. Food Chem. 2002, 50 (21), 6130-6135.	+
20	Forster, M. P.; Rodriguez, E. R.; Romero, C. D. Differential characteristics in the chemical composition of bananas from Tenerife (Canary Islands) and Ecuador. J. Agric. Food Chem. 2002, 50 (26), 7586-7592.	+
314	Fuzfai, Z.; Katona, Z. F.; Kovacs, E.; Molnar-Perl, I. Simultaneous identification and quantification of the sugar, sugar alcohol, and carboxylic acid contents of sour cherry, apple, and ber fruits, as their trimethylsilyl derivatives, by gas chromatography-mass spectrometry. J. Agric. Food Chem. 2004, 52 (25), 7444-7452.	
315	Garde-Cerdan, T.; Lorenzo, C.; Lara, J. F.; Pardo, F.; Ancin-Azpilicueta, C.; Salinas, M. R. Study of the Evolution of Nitrogen Compounds during Grape Ripening. Application to Differentiate Grape Varieties and Cultivated Systems. J. Agric. Food Chem. 2009, 57 (6), 2410-2419.	+
72	Gastoł, M.; Domagała-Swiatkiewicz, I.; Krosniak, M. Organic versus conventional – a comparative study on quality and nutritional value of fruit and vegetable juices. Biol. Agric. Hortic. 2011, 27 (3-4), 310-319.	
587	Gasztonyi, M. N.; Farkas, R. T.; Berki, M.; Petróczi, I. M.; Daood, H. G. Content of phenols in wheat as affected by varietal and agricultural factors. J. Food Compos. Anal. 2011, 24 (6), 785-789.	
495	Gilsenan, C.; Burke, R. M.; Barry-Ryan, C. A study of the physicochemical and sensory properties of organic and conventional potatoes (Solanum tuberosum) before and after baking. Int. J. Food Sci. Technol. 2010, 45 (3), 475-481.	
130	Guadagnin, S. G.; Rath, S.; Reyes, F. G. R. Evaluation of the nitrate content in leaf vegetables produced through different agricultural systems. Food Addit. Contam. Part A: Chem., Anal., Control 2005, 22 (12), 1203-1208.	+
131	Gundersen, V.; Bechmann, I. E.; Behrens, A.; Sturup, S. Comparative investigation of concentrations of major and trace elements in organic and conventional Danish agricultural crops. 1. Onions (Allium cepa Hysam) and peas (Pisum sativum Ping Pong). J. Agric. Food Chem. 2000, 48 (12), 6094-6102.	+
316	Gutierrez, F.; Arnaud, T.; Albi, M. A. Influence of ecological cultivation on virgin olive oil quality. J. Am. Oil Chem. Soc. 1999, 76 (5), 617-621.	
262	Haglund, A.; Johansson, L.; Dahlstedt, L. Sensory evaluation of wholemeal bread from ecologically and conventionally grown wheat. J. Cereal Sci. 1998, 27 (2), 199-207.	
21	Hajslova, J.; Schulzova, V.; Slanina, P.; Janne, K.; Hellenas, K. E.; Andersson, C. Quality of organically and conventionally grown potatoes: Four-year study of micronutrients, metals, secondary metabolites, enzymic browning and organoleptic properties. Food Addit. Contam. Part A: Chem., Anal., Control 2005, 22 (6), 514-534.	+

ID, Paper unique identification number. *Papers included in standard weighted meta-analysis: +; †Paper included in meta-analysis of frequency of detectable pesticide residues.

Table 2 cont. List of comparison studies included in the meta-analysis.

ID	Reference	SA*
164	Hakala, M.; Lapvetelainen, A.; Huopalahti, R.; Kallio, H.; Tahvonen, R. Effects of varieties and cultivation conditions on the composition of strawberries. J. Food Compos. Anal. 2003, 16, 67-80.	+
5	Hakkinen, S. H.; Torronen, A. R. Content of flavonols and selected phenolic acids in strawberries and Vaccinium species: influence of cultivar, cultivation site and technique. Food Res. Int. 2000, 33 (6), 517-524.	+
166	Hallmann, E.; Rembialkowska, E. Antioxidant compounds content in selected onion bulbs from organic and conventional cultivation. J. Res. Appl. Agric. Eng. 2006, 51, 42-46.	
165	Hallmann, E.; Rembialkowska, E. Estimation of fruits quality of selected tomato cultivars (Lycopersicon esculentum Mill) from organic and conventional cultivation with special consideration of bioactive compounds content. J. Res. Appl. Agric. Eng. 2007, 52, 55-60.	
64	Hallmann, E.; Rembialkowska, E. In Comparison of the Nutritive Quality of Tomato Fruits from Organic and Conventional Production in Poland, 3rd QLIF Congress: Improving Sustainability in Organic and Low Input Food Production Systems, University of Hohenheim, Stuttgart, Germany, March 20-23; University of Hohenheim, Stuttgart, Germany, 2007.	
345	Hallmann, E.; Rembialkowska, E. Influence of thermal processing on bioactive compounds content in apple puree prepared from organic fruits of old and new apple cultivars. Pol. J. Nat. Sci. 2007, 4, 37-42.	
365	Hallmann, E.; Rembialkowska, E. Selected nutrient content in red onions from organic and conventional production. Food Sci. Technol. Qual. 2007, 2 (51), 105-111.	
360	Hallmann, E.; Rembialkowska, E. The content of bioactive substances in red pepper fruits from organic and conventional production. Pol. J. Hum. Nutr. Metab. 2007, 34, 538-543.	
361	Hallmann, E.; Rembialkowska, E.; Szafirowska, A.; Grudzien, K. Significance of organic crops in health prevention illustrated by the example of organic paprika (Capsicum annuum). Rocz. Panstw. Zakl. Hig. 2007, 58 (1), 77-82.	
301	Hallmann, E.; Sikora, M.; Rembialkowska, E. The comparison of the content of antioxidants in fresh and frozen pepper from organic and conventional production. Postepy Techn. Przetw. Spozyw. 2008, 1, 30-33.	
252	Hamouz, K.; Lachman, J.; Cepl, J.; Vokal, B. Influence of locality and way of cultivation on the nitrate and glycoalkaloid content in potato tubers. Rostl. Vyroba 1999, 45 (11), 495-501.	
22	Hamouz, K.; Lachman, J.; Dvořák, P.; Pivec, V. The effect of ecological growing on the potatoes yield and quality. Plant Soil Envion. 2005, 51 (9), 6.	
251	Hamouz, K.; Lachman, J.; Pivec, V. Influence of environmental conditions and way of cultivation on the polyphenol and ascorbic acid content in potato tubers. Rostl. Vyroba 1999, 45 (7), 293-298.	
291	Hamouz, K.; Lachman, J.; Pivec, V.; Orsak, M. The effect of the conditions of cultivation on the content of polyphenol compounds in the potato cultivars Agria and Karin. Rostl. Vyroba 1997, 43, 541-546.	
218	Hanell, U.; L-Baeckstrom, G.; Svensson, G. Quality studies on wheat grown in different cropping systems: a holistic perspective. Acta Agric. Scand. Sect. B Soil Plant Sci. 2004, 54 (4), 254-263.	
536	Hansen, H. Comparison of chemical composition and taste of biodynamically and conventionally grown vegetables. Qual. Plant. Foods Hum. Nutr. 1981, 30 (3/4), 203-211.	+
233	Harcz, P.; De Temmerman, L.; De Voghel, S.; Waegeneers, N.; Wilmart, O.; Vromman, V.; Schmit, J. F.; Moons, E.; Van Peteghem, C.; De Saeger, S.; Schneider, Y. J.; Larondelle, Y.; Pussemier, L. Contaminants in organically and conventionally produced winter wheat (Triticum aestivum) in Belgium. Food Addit. Contam. Part A: Chem., Anal., Control 2007, 24 (7), 713-720.	+
132	Hargreaves, J. C.; Adl, M. S.; Warman, P. R.; Rupasinghe, H. P. V. The effects of organic and conventional nutrient amendments on strawberry cultivation: Fruit yield and quality. J. Sci. Food Agric. 2008, 88 (15), 2669-2675.	

ID, Paper unique identification number. *Papers included in standard weighted meta-analysis: +; †Paper included in meta-analysis of frequency of detectable pesticide residues.

Table 2 cont. List of comparison studies included in the meta-analysis.

ID	Reference	SA*
168	Hasey, J. K.; Johnson, R. S.; Meyer, R. D.; Klonsky, K. In An organic versus a conventional farming system in kiwifruit, Third International Symposium on Kiwifruit, Thessaloniki, Greece, September 19-22; Sfakiotakis, E.; Porlingis, J., Eds. International Society Horticultural Science: Thessaloniki, Greece, 1995; pp 223-228.	
74	Hecke, K.; Herbinger, K.; Veberic, R.; Trobec, M.; Toplak, H.; Stampar, F.; Keppel, H.; Grill, D. Sugar-, acid- and phenol contents in apple cultivars from organic and integrated fruit cultivation. Eur. J. Clin. Nutr. 2006, 60 (9), 1136-1140.	
75	Heimler, D.; Isolani, L.; Vignolini, P.; Romani, A. Polyphenol content and antiradical activity of Cichorium intybus L. from biodynamic and conventional farming. Food Chem. 2009, 114 (3), 765-770.	+
170	Hernandez Suarez, M.; Rodriguez Rodriguez, E. M.; Romero, C. D. Chemical composition of tomato (Lycopersicon esculentum) from Tenerife, The Canary Islands. Food Chem. 2008, 106, 1046-1056.	
172	Hernandez Suarez, M.; Rodriguez Rodriguez, E. M.; Romero, C. D. Mineral and trace element concentrations in cultivars of tomatoes. Food Chem. 2007, 104, 489-499.	+
171	Hernandez Suarez, M.; Rodriguez Rodriguez, E.; Romero, C. D. Analysis of organic acid content in cultivars of tomato harvested in Tenerife. Eur. Food Res. Technol. 2008, 226, 423-435.	
424	Hildermann, I.; Thommen, A.; Dubois, D.; Boller, T.; Wiemken, A.; Maeder, P. Yield and baking quality of winter wheat cultivars in different farming systems of the DOK long-term trial. J. Sci. Food Agric. 2009, 89, 2477-2491.	
133	Hogstad, S.; Risvik, E.; Steinsholt, K. Sensory quality and chemical composition in carrots: A multivariate study. Acta Agric. Scand. Sect. B Soil Plant Sci. 1997, 47 (4), 253-264.	
452†	Hoogenboom, L. A. P.; Bokhorst, J. G.; Northolt, M. D.; de Vijver, L.; Broex, N. J. G.; Mevius, D. J.; Meijs, J. A. C.; Van der Roest, J. Contaminants and microorganisms in Dutch organic food products: a comparison with conventional products. Food Addit. Contam. Part A: Chem., Anal., Control 2008, 25 (10), 1195-1207.	+
175	Huber, M.; van de Vijver, L. P. L.; Parmentier, H.; Savelkoul, H.; Coulier, L.; Wopereis, S.; Verheij, E.; van der Greef, J.; Nierop, D.; Hoogenboom, R. A. P. Effects of organically and conventionally produced feed on biomarkers of helath in a chicken model. Br. J. Nutr. 2010, 103, 663-676.	+
282	Igbokwe, P. E.; Huam, L. C.; Chukwuma, F. O.; Huam, J. Sweetpotato yield and quality as influenced by cropping systems. J. Veget. Sci. 2005, 11, 35-46.	
462	Ingver, A.; Tamm, I.; Tamm, Ü. Effect of organic and conventional production on yield and the quality of spring cereals. Latv. J. Agron. 2008, 11, 61-67.	
76	Ismail, A.; Fun, C. S. Determination of Vitamin C,β-carotene and Riboflavin Contents in Five Green Vegetables Organically and Conventionally Grown.". Malays. J. Nutr. 2003, 9 (1), 31-39.	
318	Jarvan, M.; Edesi, L. The effect of cultivation methods on the yield and biological quality of potato. Agron. Res. 2009, 7 (Sp. Iss. 1), 289-299.	
531	Jin, P.; Wang, S. Y.; Wang, C. Y.; Zheng, Y. Effect of cultural system and storage temperature on antioxidant capacity and phenolic compounds in strawberries. Food Chem. 2011, 124 (1), 262-270.	
500	Jiwan, M. A.; Duane, P.; O'Sullivan, L.; O'Brien, N. M.; Aherne, S. A. Content and bioaccessibility of carotenoids from organic and non-organic baby foods. J. Food Compos. Anal. 2010, 23 (4), 346-352.	+
446	Jorgensen, H.; Brandt, K.; Lauridsen, C. Year rather than farming system influences protein utilization and energy value of vegetables when measured in a rat model. Nutr. Res. 2008, 28, 866-878.	
136	Jorhem, L.; Slanina, P. Does organic farming reduce the content of Cd and certain other trace metals in plant foods? A pilot study. J. Sci. Food Agric. 2000, 80 (1), 43-48.	+

ID, Paper unique identification number. *Papers included in standard weighted meta-analysis: +; †Paper included in meta-analysis of frequency of detectable pesticide residues.

Table 2 cont. List of comparison studies included in the meta-analysis.

ID	Reference	SA*
23	Juroszek, P.; Lumkin, H. M.; Yang, R. Y.; Ledesma, D. R.; Ma, C. H. Fruit Quality and Bioactive Compounds with Antioxidant Activity of Tomatoes Grown On-Farm: Comparison of Organic and Conventional Management Systems. J. Agric. Food Chem. 2009, 57 (4), 1188-1194.	+
24	Kahu, K.; Janes, H.; Luik, A.; Klaas, L. Yield and fruit quality of organically cultivated blackcurrant cultivars. Acta Agric. Scand. Sect. B Soil Plant Sci. 2009, 59 (1), 63-69.	
528	Kalinova, J.; Vrchotova, N. The influence of organic and conventional crop management, variety and year on the yield and flavonoid level in common buckwheat groats. Food Chem. 2011, 127, 602-608.	+
134	Kallio, H.; Hakala, M.; Pelkkikangas, A. M.; Lapvetelainen, A. Sugars and acids of strawberry varieties. Eur. Food Res. Technol. 2000, 212 (1), 81-85.	+
585	Kapoulas, N.; Ilić, Z. S.; Đurovka, M.; Trajković, Z.; Milenković, L. Effect of organic and conventional production practices on nutritional value and antioxidant activity of tomatoes. Afr. J. Biotechnol. 2011, 10 (71), 15938-15945.	
346	Karavoltsos, S.; Sakellari, A.; Dimopoulos, M.; Dassenakis, M.; Scoullos, M. Cadmium content in foodstuffs from the Greek market. Food Addit. Contam. Part A: Chem., Anal., Control 2002, 19 (10), 954-962.	
347	Kelly, S. D.; Bateman, A. S. Comparison of mineral concentrations in commercially grown organic and conventional crops - Tomatoes (Lycopersicon esculentum) and lettuces (Lactuca sativa). Food Chem. 2010, 119 (2), 738-745.	+
28	Keukeleire, J.; Janssens, I.; Heyerick, A.; Ghekiere, G.; Cambie, J.; Roldan-Ruiz, I.; Van Bockstaele, E.; De Keukeleire, D. Relevance of organic farming and effect of climatological conditions on the formation of alpha-acids, beta-acids, desmethylxanthohumol, and xanthohumol in hop (Humulus lupulus L.). J. Agric. Food Chem. 2007, 55 (1), 61-66.	+
319	Kihlberg, I.; Johansson, L.; Kohler, A.; Risvik, E. Sensory qualities of whole wheat pan bread - influence of farming system, milling and baking technique. J. Cereal Sci. 2004, 39 (1), 67-84.	
261	Kihlberg, I.; Ostrom, A.; Johansson, L.; Risvik, E. Sensory qualities of plain white pan bread: Influence of farming system, year of harvest and baking technique. J. Cereal Sci. 2006, 43 (1), 15-30.	
443	Kim, G. D.; Lee, J. S.; Cho, J.-Y.; Lee, Y. H.; Choi, K. J.; Lee, Y.; Han, T.-H.; Lee, S.-H.; Park, K. Y.; Moon, J.-H. Comparison of the content of bioactive substances and the inhibitory effects against rat plasma oxidation of conventional and organic hot peppers J. Agric. Food Chem. 2010, 58, 12300-12306.	+
463	Klimankova, E.; Holadova, K.; Hajslova, J.; Cajka, T.; Poustka, J.; Koudela, M. Aroma profiles of five basil (Ocimum basilicum L.) cultivars grown under conventional and organic conditions. Food Chem. 2008, 107 (1), 464-472.	
77	Koh, E.; Wimalasiri, K. M. S.; Renaud, E. N. C.; Mitchell, A. E. A comparison of flavonoids, carotenoids and vitamin C in commercial organic and conventional marinara pasta sauce. J. Sci. Food Agric. 2008, 88 (2), 344-354.	+
185	Kokornaczyk, M.; Kahl, J.; Roose, M.; Busscher, N.; Ploeger, A. In Organic wheat quality from a defined Italian field-trial, 16th IFOAM Organic World Congress, Modena, Italy, June 16-20; Modena, Italy, 2008.	
179	Krejcirova, L.; Capouchova, I.; Bicanova, E.; Famera, O. Storage protein composition of winter wheat from organic farming. Sci. Agric. Boh. 2008, 39, 6-11.	
275	Krejcirova, L.; Capouchova, I.; Petr, J.; Bicanova, E.; Famera, O. The effect of organic and conventional growing systems on quality and storage protein composition of winter wheat. Plant Soil Envion. 2007, 53 (11), 499-505.	
180	Krejcirvoa, L.; Capouchova, I.; Petr, J.; Bicanova, E.; Kvapil, R. Protein composition and quality of winter wheat from organic and conventional farming. Zemdirb. Mokslo Darb. 2006, 93, 285-196.	

ID, Paper unique identification number. *Papers included in standard weighted meta-analysis: +; †Paper included in meta-analysis of frequency of detectable pesticide residues.

Table 2 cont. List of comparison studies included in the meta-analysis.

ID	Reference	SA*
137	Kristensen, M.; Ostergaard, L. F.; Halekoh, U.; Jorgensen, H.; Lauridsen, C.; Brandt, K.; Bugel, S. Effect of plant cultivation methods on content of major and trace elements in foodstuffs and retention in rats. J. Sci. Food Agric. 2008, 88 (12), 2161-2172.	
25	Lamperi, L.; Chiuminatto, U.; Cincinelli, A.; Galvan, P.; Giordani, E.; Lepri, L.; Del Bubba, M. Polyphenol levels and free radical scavenging activities of four apple cultivars from integrated and organic farming in different Italian areas. J. Agric. Food Chem. 2008, 56 (15), 6536-6546.	
285	Lanzanova, C.; Balconi, C.; Romani, M.; Vidotto, F.; Lupotto, E. Phytosanitary and quality evaluation of rice kernels organically and conventionally produced. Inf. Fitopatol. 2006, 56, 66-72.	
348	Lauridsen, C.; Yong, C.; Halekoh, U.; Bugel, S. H.; Brandt, K.; Christensen, L. P.; Jorgensen, H. Rats show differences in some biomarkers of health when eating diets based on ingredients produced with three different cultivation strategies. J. Sci. Food Agric. 2008, 88 (4), 720-732.	
532	Laursen, K. H.; Schjoerring, J. K.; Olesen, J. E.; Askegaard, M.; Halekoh, U.; Husted, S. Multielemental Fingerprinting as a Tool for Authentication of Organic Wheat, Barley, Faba Bean, and Potato. J. Agric. Food Chem. 2011, 59 (9), 4385-4396.	+
272	L-Baeckstrom, G.; Hanell, U.; Svensson, G. Baking quality of winter wheat grown in different cultivating systems, 1992-2001: A holistic approach. J. Sustain. Agric. 2004, 24 (1), 53-79.	+
219	L-Baeckstrom, G.; Hanell, U.; Svensson, G. Nitrogen use efficiency in an 11-year study of conventional and organic wheat cultivation. Commun. Soil Sci. Plant Anal. 2006, 37 (3-4), 417-449.	
323	L-Baeckstrom, G.; Lundegardh, B.; Hanell, U. The interactions between nitrogen dose, year and stage of ripeness on nitrogen and trace element concentrations and seed-borne pathogens in organic and conventional wheat. J. Sci. Food Agric. 2006, 86 (15), 2560-2578.	
501	Leccese, A.; Bureau, S.; Reich, M.; Renard, M. G. C. C.; Audergon, J.-M.; Mennone, C.; Bartolini, S.; Viti, R. Pomological and Nutraceutical Properties in Apricot Fruit: Cultivation Systems and Cold Storage Fruit Management. Plant Foods Hum. Nutr. 2010, 65 (2), 112-120.	
181	Leclerc, J.; Miller, M. L.; Joliet, E.; Rocquelin, G. Vitamin and mineral contents of carrot and celeriac grown under mineral or organic fertilization. Biol. Agric. Hortic. 1991, 7, 339-348.	+
260	Lehesranta, S. J.; Koistinen, K. M.; Massat, N.; Davies, H. V.; Shepherd, L. V. T.; McNicol, J. W.; Cakmak, I.; Cooper, J.; Lueck, L.; Karenlampi, S. O.; Leifert, C. Effects of agricultural production systems and their components on protein profiles of potato tubers. Proteomics 2007, 7 (4), 597-604.	
34	Lester, G. E.; Manthey, J. A.; Buslig, B. S. Organic vs conventionally grown rio red whole grapefruit and juice: Comparison of production inputs, market quality, consumer acceptance, and human health-bioactive compounds. J. Agric. Food Chem. 2007, 55 (11), 4474-4480.	
620†	Lesueur, C.; Gartner, M.; Knittl, P.; List, P.; Wimmer, S.; Sieler, V.; Fürhacker, M., Pesticide residues in fruit and vegetable samples: analytical results of 2 year's pesticide investigations. In Ernährung/Nutrition, 2007; Vol. 31, pp 247-259.	+
286	Leszczynska, T. Nitrates and nitrites in vegetables from conventional and ecological cultures. Bromatol. Chem. Toksykol. 1996, 29, 289-293.	
65	Lévite, D.; Adrian, M.; Tamm, L. In Preliminary Results on Contents of Resveratrol in Wine of Organic and Conventional Vineyards., 6th International Congress on Organic Viticulture, Basel, Switzerland, August 25-26; Willer, H.; Meier, U., Eds. Proceedings 6th International Congress on Organic Viticulture, Forschungsinstitut für biologischen Landbau (FiBL) und Stiftung Ökologie und Landbau: Basel, Switzerland, 2000; pp 256-257.	+
79	Lima, G. P. P.; Da Rocha, S. A.; Takaki, M.; Ramos, P. R. R.; Ono, E. O. Comparison of polyamine, phenol and flavonoid contents in plants grown under conventional and organic methods. Int. J. Food Sci. Technol. 2008, 43 (10), 1838-1843.	

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Table 2 cont. List of comparison studies included in the meta-analysis.

ID	Reference	SA*
80	Lima, G. P. P.; Lopes, T. D. C.; Rossetto, M. R. M.; Vianello, F. Nutritional composition, phenolic compounds, nitrate content in eatable vegetables obtained by conventional and certified organic grown culture subject to thermal treatment. Int. J. Food Sci. Technol. 2009, 44 (6), 1118-1124.	+
549	Lima, J. D.; Moraes, W. d. S.; Modenese Gorla da Silva, S. H.; Ibrahim, F. N.; da Silva, A. C., Jr. Accumulation Of nitrogen Compounds and Nitrate Reductase Activity in Lettuce Cultivated in Different Cropping Systems. Pesqu. Agropecu. Trop. 2008, 38 (3), 180-187.	
324	Lima-Pallone, J. A.; Catharino, R. R.; Godoy, H. T. In Folates in conventional and organic broccoli and losses during cooking, 31st Annual Meeting of the Sociedade-Brasileira-de-Quimica, Salvador, Brazil, Salvador, Brazil, 2008; pp 530-535.	+
26	Lombardi-Boccia, G.; Lucarini, M.; Lanzi, S.; Aguzzi, A.; Cappelloni, M. Nutrients and antioxidant molecules in yellow plums (Prunus domestica L.) from conventional and organic productions: A comparative study. J. Agric. Food Chem. 2004, 52 (1), 90-94.	+
35	Lumpkin, H. A comparison of lycopene and other phytochemicals in tomatoes grown under conventional and organic management systems. AVRDC 2005, (34).	+
435	Lundegardh, B.; Botek, P.; Schulzova, V.; Hajslova, J.; Stromberg, A.; Andersson, H. C. Impact of different green manures on the content of S-Alk(en)yl-L-cysteine sulfoxides and L-ascorbic acid in leek (Allium porrum). J. Agric. Food Chem. 2008, 56, 2102-2111.	
201	Luthria, D.; Singh, A. P.; Wilson, T.; Vorsa, N.; Banuelos, G. S.; Vinyard, B. T. Influence of conventional and organic agricultural practices on the phenolic content in eggplant pulp: Plant-to-plant variation. Food Chem. 2010, 121 (2), 406-411.	+
586	Maciel, L. F.; Oliveira, C. d. S.; Bispo, E. d. S.; Miranda, M. d. P. S. Antioxidant activity, total phenolic compounds and flavonoids of mangoes coming from biodynamic, organic and conventional cultivations in three maturation stages. Br. Food J. 2011, 113 (8-9), 1103-1113.	+
182	Macit, I.; Koc, A.; Guler, S.; Deligoz, I. Yield, quality and nutritional status of organically and conventionally-grown strawberry cultivars. Asian J. Plant Sci. 2007, 6, 1131-1136.	
140	Mader, P.; Pfiffner, L.; Niggli, U.; Balzer, U.; Balzer, F.; Plochberger; Velimirov, A.; Besson, J. M. Effect of three farming systems (bio-dynamic, bio-organic, conventional) on yield and quality of beetroot (Beta vulgaris L. var. Esculenta L.) in a seven year crop rotation. Acta Hortic. 1993, 339, 11-31.	
141	Maggio, A.; Carillo, P.; Bulmetti, G. S.; Fuggi, A.; Barbieri, G.; De Pascale, S. Potato yield and metabolic profiling under conventional and organic farming. Eur. J. Agron. 2008, 28 (3), 343-350.	
471	Malik, N. S. A.; Perez, J. L.; Lombardini, L.; Cornacchia, R.; Cisneros-Zevallos, L.; Braford, J. Phenolic compounds and fatty acid composition of organic and conventional grown pecan kernels. J. Sci. Food Agric. 2009, 89 (13), 2207-2213.	+
36	Malusa, E.; Laurenti, E.; Ghibaudi, E.; Rolle, L. In Influence of organic and conventional management on yield and composition of grape cv. 'Grignolino', XXVI International Horticultural Congress: Viticulture - Living with Limitations, 2004; pp 135-141.	+
202	Mansour, S. A.; Belal, M. H.; Abou-Arab, A. A. K.; Ashour, H. M.; Gad, M. F. Evaluation of some pollutant levels in conventionally and organically farmed potato tubers and their risks to human health. Food Chem. Toxicol. 2009, 47 (3), 615-624.	+
203	Mansour, S. A.; Belal, M. H.; Abou-Arab, A. A. K.; Gad, M. F. Monitoring of pesticides and heavy metals in cucumber fruits produced from different farming systems. Chemosphere 2009, 75 (5), 601-609.	+
27	Marin, A.; Gil, M. I.; Flores, P.; Hellin, P.; Selma, M. V. Microbial Quality and Bioactive Constituents of Sweet Peppers from Sustainable Production Systems. J. Agric. Food Chem. 2008, 56 (23), 11334-11341.	
448	Martins, C.; Merces, A.; Alvito, P. Ocorrencia de cadmio em produtos a base de de cereais, de origem convencional e biologica, destinados a alimentacao infantil. Rev. Cientif. Escola Superior Tecnol. Saude Lisb. 2009, 3, 10-14.	+

ID, Paper unique identification number. *Papers included in standard weighted meta-analysis: +; †Paper included in meta-analysis of frequency of detectable pesticide residues.

Table 2 cont. List of comparison studies included in the meta-analysis.

ID	Reference	SA*
81	Masamba, K. G.; Nguyen, M. Determination and comparison of vitamin C, calcium and potassium in four selected conventionally and organically grown fruits and vegetables. Afr. J. Biotechnol. 2008, 7 (16), 2915-2919.	
82	Matallana González, M. C.; Hurtado, C.; Tomé, M. J. M. Study of water-soluble vitamins (thiamin, riboflavin, pyridoxine and ascorbic acid) in ecologically-grown lettuce (Lactuca sativa L.). Alimentaria 1998, 35 (293), 39-43.	+
422	Mazzoncini, M.; Barberi, P.; Belloni, P.; Cerrai, D.; Antichi, D. Sunflower under conventional and organic farming systems: results from a long term experiment in Central Italy. Aspects Appl. Biol. 2006, 79, 125-129.	
142	Mazzoncini, M.; Belloni, P.; Risaliti, R.; Antichi, D. In Organic vs conventional winter wheat quality and organoleptic bread test, 3rd QLIF Congress: Improving Sustainability in Organic and Low Input Food Production Systems, University of Hohenheim, Stuttgart, Germany, March 20-23; University of Hohenheim, Stuttgart, Germany, 2007.	
37	Mendez, C. D. V.; Forster, M. P.; Rodriguez-Delgado, M. A.; Rodriguez-Rodriguez, E. M.; Romero, C. D. Content of free phenolic compounds in bananas from Tenerife (Canary Islands) and Ecuador. Eur. Food Res. Technol. 2003, 217 (4), 287-290.	+
143	Mercadante, A. Z.; Rodriguez-Amaya, D. B. Carotenoid composition of a leafy vegetable in relation to some agricultural variables. J. Agric. Food Chem. 1991, 39, 1094-1097.	+
83	Meyer, M.; Adam, S. T. Comparison of glucosinolate levels in commercial broccoli and red cabbage from conventional and ecological farming. Eur. Food Res. Technol. 2008, 226 (6), 1429-1437.	+
184	Miceli, A.; Negro, C.; Tommasi, L.; de Leo, P. Polyphenols, resveratrol, antioxidant activity and ochratoxin A contamination in red table wines, controlled denomination of origin (DOC) wines and wines obtained from organic farming. J. Wine Res. 2003, 14, 115-120.	+
31	Mikkonen, T. P.; Maatta, K. R.; Hukkanen, A. T.; Kokko, H. I.; Torronen, A. R.; Karenlampi, S. O.; Karjalainen, R. O. Flavonol content varies among black currant cultivars. J. Agric. Food Chem. 2001, 49 (7), 3274-3277.	+
433	Mikulic Petkovsek, M.; Slatnar, A.; Stampar, F.; Veberic, R. The influence of organic/integrated production on the content of phenolic compounds in apple leaves and fruits in four different varieties over 2-year period. J. Sci. Food Agric. 2010.	
11	Mitchell, A. E.; Hong, Y. J.; Koh, E.; Barrett, D. M.; Bryant, D. E.; Denison, R. F.; Kaffka, S. Ten-year comparison of the influence of organic and conventional crop management practices on the content of flavonoids in tomatoes. J. Agric. Food Chem. 2007, 55 (15), 6154-6159.	+
41	Mogren, L. M.; Caspersen, S.; Olsson, M. E.; Gertsson, U. Organically fertilized onions (Allium cepa L.): Effects of the fertilizer placement method on quercetin content and soil nitrogen dynamics. J. Agric. Food Chem. 2008, 56 (2), 361-367.	+
42	Moreira, M. D.; Roura, S. I.; Del Valle, C. E. Quality of Swiss chard produced by conventional and organic methods. LWT--Food Sci. Technol. 2003, 36 (1), 135-141.	+
206	Moyano, L.; Zea, L.; Villafuerte, L.; Medina, M. Comparison of Odor-Active Compounds in Sherry Wines Processed from Ecologically and Conventionally Grown Pedro Ximenez Grapes. J. Agric. Food Chem. 2009, 57 (3), 968-973.	+
504	Mulero, J.; Pardo, F.; Zafrilla, P. Antioxidant activity and phenolic composition of organic and conventional grapes and wines. J. Food Compos. Anal. 2010, 23 (6), 569-574.	+
43	Mulero, J.; Pardo, F.; Zafrilla, P. Effect of principal polyphenolic components in relation to antioxidant activity in conventional and organic red wines during storage. Eur. Food Res. Technol. 2009, 229 (5), 807-812.	+
432	Murayama, T.; Hasegawa, H.; Miyazawa, K.; Takeda, M.; Murayama, H. Differences of quality between organic and conventional cherry tomatoes grown in summer and autumn. J. Jpn. Soc. Food Sci. Technol. 2010, 57 (7), 314-318.	+

ID, Paper unique identification number. *Papers included in standard weighted meta-analysis: +; †Paper included in meta-analysis of frequency of detectable pesticide residues.

Table 2 cont. List of comparison studies included in the meta-analysis.

ID	Reference	SA*
144	Murayama, T.; Miyazawa, K.; Hasegawa, H. Qualitative Differences of Spinach Grown under Organic or Conventional Farming in Autumn and Winter. J. Jpn. Soc. Food Sci. Technol. 2008, 55 (10), 494-501.	+
271	Nakagawa, S.; Tamura, Y.; Ogata, Y. Comparison of rice grain qualities as influenced by organic and conventional farming systems. Jpn. J. Crop Sci. 2000, 69 (1), 31-37.	
327	Nakamura, Y. N.; Fujita, M.; Nakamura, Y.; Gotoh, T. Comparison of nutritional composition and histological changes of the soybean seeds cultivated by conventional and organic farming systems after long-term storage - Preliminary study. J. Fac. Agric. Kyushu Univ. 2007, 52 (1), 1-10.	
519	Navarro, P.; Perez-Lopez, A. J.; Mercader, M. T.; Carbonell-Barrachina, A. A.; Gabaldon, J. A. Antioxidant Activity, Color, Carotenoids Composition, Minerals, Vitamin C and Sensory Quality of Organic and Conventional Mandarin Juice, cv. Orogrande. Food Sci. Technol. Int. 2011, 17 (3), 241-248.	
483	Neacsu, A.; Serban, G.; Tuta, C.; Toncea, I. Baking Quality of Wheat Cultivars, Grown in Organic, Conventional and Low Input Agricultural Systems. Rom. Agric. Res. 2010, 27, 35-42.	
187	Nguyen, M. L.; Haynes, R. J.; Goh, K. M. Nutrient budgets and status in three pairs of conventional and alternative mixed cropping farms in Canterbury, New Zealand. Agric. Ecosyst. Environ. 1995, 52, 149-162.	+
328	Ninfali, P.; Bacchiocca, M.; Biagiotti, E.; Esposto, S.; Servili, M.; Rosati, A.; Montedoro, G. A 3-year study on quality, nutritional and organoleptic evaluation of organic and conventional extra-virgin olive oils. J. Am. Oil Chem. Soc. 2008, 85 (2), 151-158.	
581	Nitika, D. P.; Khetarpaul, N. Physico-chemical characteristics, nutrient composition and consumer acceptability of wheat varieties grown under organic and inorganic farming conditions. Int. J. Food Sci. Nutr. 2008, 59 (3), 224-245.	+
44	Nobili, F.; Finotti, E.; Foddai, M. S.; Azzini, E.; Garaguso, I.; Raguzzini, A.; Tisselli, V.; Piazza, C.; Durazzo, A.; Maiani, G. In Bioactive compounds in tomatoes: effect of organic vs conventional management in Parma in 2006, 16th IFOAM Organic World Congress, Modena, Italy, June 16-20; Modena, Italy, 2008.	+
354	Nunez-Delicado, E.; Sanchez-Ferrer, A.; Garcia-Carmona, F. F.; Lopez-Nicolas, J. M. Effect of organic farming practices on the level of latent polyphenol oxidase in grapes. J. Food Sci. 2005, 70 (1), 74-78.	
288	Nyanjage, M. O.; Wainwright, H.; Bishop, C. F. H.; Cullum, F. J. A comparative study on the ripening and mineral content of organically and conventionally grown Cavendish bananas. Biol. Agric. Hortic. 2001, 18, 221-234.	
45	Olsson, M. E.; Andersson, C. S.; Oredsson, S.; Berglund, R. H.; Gustavsson, K. E. Antioxidant levels and inhibition of cancer cell proliferation in vitro by extracts from organically and conventionally cultivated strawberries. J. Agric. Food Chem. 2006, 54 (4), 1248-1255.	+
46	Ordonez-Santos, L. E.; Arbones-Macineira, E.; Fernandez-Perejon, J.; Lombardero-Fernandez, M.; Vazquez-Oderiz, L.; Romero-Rodriguez, A. Comparison of physicochemical, microscopic and sensory characteristics of ecologically and conventionally grown crops of two cultivars of tomato (Lycopersicon esculentum Mill.). J. Sci. Food Agric. 2009, 89 (5), 743-749.	+
533	Ordonez-Santos, L. E.; Vazquez-Oderiz, M. L.; Romero-Rodriguez, M. A. Micronutrient contents in organic and conventional tomatoes (Solanum lycopersicum L.). Int. J. Food Sci. Technol. 2011, 46, 1561-1568.	
208	Owsikowski, M.; Gronowska-Senger, A.; Predka, A. Antioxidants content in selected conventionally and organically cultivated vegetables. Rocz. Panstw. Zakl. Hig. 2008, 59 (2), 223-30.	+
84	Palit, S.; Ghosh, B. C.; Dutta Gupta, S.; Swain, D. K. Studies on tea quality grown through conventional and organic management practices: Its impact on antioxidant and antidiarrhoeal activity. Trans. ASAE 2008, 51 (6), 2227-2238.	

ID, Paper unique identification number. *Papers included in standard weighted meta-analysis: +; †Paper included in meta-analysis of frequency of detectable pesticide residues.

Table 2 cont. List of comparison studies included in the meta-analysis.

ID	Reference	SA*
106	Park, K. Y.; Bak, S. S.; Kim, B. K.; Son, A. R.; Seo, H. R.; Choi, K. B.; Lee, S. Y. Increased anticancer effects of organically- cultivated kale (Brassica oleracea Acephala group) in AGS human adenocarcinoma cells. Proc. Nutr. Soc. 2008.	
47	Pascale, S. d.; Tamburrino, R.; Maggio, A.; Barbieri, G.; Fogliano, V.; Pernice, R. Effects of nitrogen fertilization on the nutritional value of organically and conventionally grown tomatoes. Acta Hortic. 2006, 107-110.	
48	Peck, G. M.; Andrews, P. K.; Reganold, J. P.; Fellman, J. K. Apple orchard productivity and fruit quality under organic, conventional, and integrated management. Hortscience 2006, 41 (1), 99-107.	
426	Peck, G. M.; Merwin, I. A.; Watkins, C. B.; Chapman, K. W.; Padilla-Zakour, O. I. Maturity and Quality of 'Liberty' Apple Fruit Under Integrated and Organic Fruit Production Systems Are Similar. Hortscience 2009, 44 (5), 1382-1389.	
277	Perez-Llamas, F.; Navarro, I.; Marin, J. F.; Madrid, J. A.; Zamora, S. Comparative study on the nutritive quality of foods grown organically and conventionally. Alimentaria 1996, 34, 41-44.	
85	Perez-Lopez, A. J.; del Amor, F. M.; Serrano-Martinez, A.; Fortea, M. I.; Nunez-Delicado, E. Influence of agricultural practices on the quality of sweet pepper fruits as affected by the maturity stage. J. Sci. Food Agric. 2007, 87 (11), 2075-2080.	
10	Perez-Lopez, A. J.; Lopez-Nicolas, J. M.; Carbonell-Barrachina, A. A. Effects of organic farming on minerals contents and aroma composition of Clemenules mandarin juice. Eur. Food Res. Technol. 2007, 225 (2), 255-260.	
86	Perez-Lopez, A. J.; Lopez-Nicolas, J. M.; Nunez-Delicado, E.; Del Amor, F. M.; Carbonell-Barrachina, A. A. Effects of agricultural practices on color, carotenoids composition, and minerals contents of sweet peppers, cv. Almuden. J. Agric. Food Chem. 2007, 55 (20), 8158-8164.	
189	Perretti, G.; Finotti, E.; Adamuccio, S.; Sera, R. D.; Montanari, L. Composition of organic and conventionally produced sunflower seed oil. J. Am. Oil Chem. Soc. 2004, 81, 1119-1123.	+
278	Petr, J. Quality of triticale from ecological and intensive farming. Sci. Agric. Boh. 2006, 37, 95-103.	
428	Petr, J.; Leibl, M.; Psota, V.; Langer, I. Spring barley varieties - yield and quality in ecological agriculture Sci. Agric. Boh. 2002, 33 (1), 1-9.	
265	Petr, J.; Skerik, J.; Psota, V.; Langer, I. Quality of malting barley grown under different cultivation systems. Monatsschr. Brauwissen. 2000, 53, 90-94.	
289	Petr, J.; Sr Petr, J.; Jr Skerik, J.; Horcicka, P. Quality of wheat from different growing systems. Sci. Agric. Boh. 1998, 29, 161-182.	
442	Picchi, V.; Migliori, C.; Lo Scalzo, R.; Campanelli, G.; Ferrari, V.; Di Cesare, L. F. Phytochemical content in organic and conventionally grown Italian cauliflower. Food Chem. 2011.	
49	Pieper, J. R.; Barrett, D. M. Effects of organic and conventional production systems on quality and nutritional parameters of processing tomatoes. J. Sci. Food Agric. 2009, 89 (2), 177-194.	+
477	Pinheiro Camargo, L. K.; Vilela de Resende, J. T.; Galvao, A. G.; Baier, J. E.; Faria, M. V.; Camargo, C. K. Chemical characterization of strawberry fruits in the organic and conventional cropping systems in pots. Semin.-Cinac. Agrar. 2009, 30, 993-998.	
434	Polat, E.; Demir, H.; Erler, F. Yield and quality criteria in organically and convetionally grown tomatoes in Turkey. Sci. Agric. 2010, 67 (4), 424-429.	+
330	Polat, E.; Demir, H.; Onus, A. N. Comparison of some yield and quality criteria in organically and conventionally-grown lettuce. Afr. J. Biotechnol. 2008, 7 (9), 1235-1239.	
621†	Porretta, S., Qualitative comparison between commercial "traditional" and "organic" tomato products using multivariate statistical analysis. In Acta Hortic., 1994; Vol. 376, pp 259-270.	+
460†	Poulsen, M. E.; Andersen, H. J. Results from the monitoring of pesticide residues in fruit and vegetables on the Danish market, 2000-01. Food Addit. Contam., Part A 2003, 20 (8), 742-757.	+

ID, Paper unique identification number. *Papers included in standard weighted meta-analysis: +; †Paper included in meta-analysis of frequency of detectable pesticide residues.

Table 2 cont. List of comparison studies included in the meta-analysis.

ID	Reference	SA*
331	Predka, A.; Gronowska-Senger, A. Antioxidant Properties of Selected Vegetables from Organic and Conventional System of Cultivation in Reducing Oxidative Stress. Food Sci. Technol. Qual. 2009, 16 (4), 9-18.	+
255	Procida, G.; Pertoldi, M. G.; Ceccon, L. Heavy metal content of some vegetables farmed by both conventional and organic methods. Riv. Sci. Aliment. 1998, 27 (3), 181-189.	
517	Rahman, M. H.; Holmes, A. W.; McCurran, A. G.; Saunders, S. J. Impact of Management Systems on Soil Properties and Their Relationships to Kiwifruit Quality. Commun. Soil Sci. Plant Anal. 2011, 42 (3), 332-357.	
486	Raigon, M. D.; Rodriguez-Burruezo, A.; Prohens, J. Effects of Organic and Conventional Cultivation Methods on Composition of Eggplant Fruits. J. Agric. Food Chem. 2010, 58 (11), 6833-6840.	
50	Rapisarda, P.; Calabretta, M. L.; Romano, G.; Intrigliolo, F. Nitrogen metabolism components as a tool to discriminate between organic and conventional citrus fruits. J. Agric. Food Chem. 2005, 53 (7), 2664-2669.	
488	Reganold, J. P.; Andrews, P. K.; Reeve, J. R.; Carpenter-Boggs, L.; Schadt, C. W.; Alldredge, J. R.; Ross, C. F.; Davies, N. M.; Zhou, J. Fruit and soil quality of organic and conventional strawberry agroecosystems. PLoS ONE 2010, 5 (9), 1-14.	+
333	Reid, T. A.; Yang, R. C.; Salmon, D. F.; Spaner, D. Should spring wheat breeding for organically managed systems be conducted on organically managed land? Euphytica 2009, 169 (2), 239-252.	+
87	Rembialkowska, E. Comparison of the contents of nitrates, nitrites, lead, cadmium and vitamin C in potatoes from conventional and ecological farms. Pol. J. Food Nutr. Sci. 1999, 8 (4), 17-26.	+
364	Rembialkowska, E. In Organic farming as a system to provide better vegetable quality, International Conference on Quality in Chains, Wageningen, The Netherlands, Tijskens, L. M. M.; Vollebregt, H. M., Eds. Wageningen, The Netherlands, 2003; pp 473-479.	+
122	Rembialkowska, E.; Hallmann, E. Influence of cultivation method (organic vs. conventional) on selected quality attributes of carrots (Daucus carota). Pol. J. Hum. Nutr. Metab. 2007, 34 (1/2), 550-556.	
300	Rembialkowska, E.; Hallmann, E. The changes of the bioactive compounds in pickled red pepper fruits from organic and conventional production. J. Res. Appl. Agric. Eng. 2008, 53 (4), 51-57.	+
302	Rembialkowska, E.; Hallmann, E.; Adamczyk, M.; Lipowski, J.; Jasinska, U.; Owczarek, L. The effects of technological processes on total polyphenols in & the antioxidant capacity of juice and mousse made of apples originating from the organic and conventional production. Food Sci. Technol. Qual. 2006, 1 (46 (Suppl.)), 121-126.	
51	Rembialkowska, E.; Hallmann, E.; Rusaczonek, A. In Influence of processing on bioactive substances content and antioxidant properties of apple puree from organic and conventional production in Poland, 3rd QLIF Congress: Improving Sustainability in Organic and Low Input Food Production Systems, University of Hohenheim, Stuttgart, Germany, March 20-23; University of Hohenheim, Stuttgart, Germany, 2007.	
303	Rembialkowska, E.; Hallmann, E.; Rusaczonek, A. Influence of pasteurization process on bioactive substances content and antioxidant activity of apple pomace from organic and conventional cultivation. J. Res. Appl. Agric. Eng. 2006, 51 (2), 144-149.	
88	Ren, H. F.; Endo, H.; Hayashi, T. Antioxidative and antimutagenic activities and polyphenol content of pesticide-free and organically cultivated green vegetables using water-soluble chitosan as a soil modifier and leaf surface spray. J. Sci. Food Agric. 2001, 81 (15), 1426-1432.	+
210	Riahi, A.; Hdider, C.; Sanaa, M.; Tarchoun, N.; Kheder, M. B.; Guezal, I. Effect of conventional and organic production systems on the yield and quality of field tomato cultivars grown in Tunisia. J. Sci. Food Agric. 2009, 89 (13), 2275-2282.	+

ID, Paper unique identification number. *Papers included in standard weighted meta-analysis: +; †Paper included in meta-analysis of frequency of detectable pesticide residues.

Table 2 cont. List of comparison studies included in the meta-analysis.

146	Ribeiro, S. M. R.; Barbosa, L. C. A.; Queiroz, J. H.; Knodler, M.; Schieber, A. Phenolic compounds and antioxidant capacity of Brazilian mango (Mangifera indica L.) varieties. Food Chem. 2008, 110 (3), 620-626.	
89	Riu-Aumatell, M.; Castellari, M.; Lopez-Tamames, E.; Galassi, S.; Buxaderas, S. Characterisation of volatile compounds of fruit juices and nectars by HS/SPME and GUMS. Food Chem. 2004, 87 (4), 627-637.	+
52	Robbins, R. J.; Keck, A. S.; Banuelos, G.; Finley, J. W. Cultivation conditions and selenium fertilization alter the phenolic profile, glucosinolate, and sulforaphane content of broccoli. J. Med. Food 2005, 8 (2), 204-214.	
493	Rodrigues Ferreira, S. M.; de Quadros, D. A.; Lazzari Karkle, E. N.; de Lima, J. J.; Tullio, L. T.; Sossela de Freitas, R. J. Postharvest quality of conventional and organic tomatoes. Cienc. Tecnol. Aliment. 2010, 30 (4), 858-864.	+
494†	Rodrigues Ferreira, S. M.; Sossela de Freitas, R. J.; Lazzari Karkle, E. N.; de Quadros, D. A.; Tullio, L. T.; de Lima, J. J. Quality of tomatoes cultivated in the organic and conventional cropping systems. Cienc. Tecnol. Aliment. 2010, 30 (1), 224-230.	+
53	Rodriguez, J.; Rios, D.; Rodriguez, D.; Romero, C. D. Physico-chemical changes during ripening of conventionally, ecologically and hydroponically cultivated Tyrlain (TY 10016) tomatoes. Int. J. Agric. Res. 2006, 1 (5), 452-461.	+
334	Roose, M.; Kahl, J.; Ploeger, A. Influence of the farming system on the xanthophyll content of soft and hard wheat. J. Agric. Food Chem. 2009, 57 (1), 182-188.	
147	Rosenthal, S.; Jansky, S. Effect of production site and storage on antioxidant levels in specialty potato (Solanum tuberosum L.) tubers. J. Sci. Food Agric. 2008, 88 (12), 2087-2092.	+
211	Rossi, F.; Bertuzzi, T.; Comizzoli, S.; Turconi, G.; Roggi, C.; Pagani, M.; Cravedi, P.; Pietri, A. Preliminary survey on composition and quality of conventional and organic wheat. Ital. J. Food Sci. 2006, 18, 355-367.	+
90	Rossi, F.; Godani, F.; Bertuzzi, T.; Trevisan, M.; Ferrari, F.; Gatti, S. Health-promoting substances and heavy metal content in tomatoes grown with different farming techniques. Eur. J. Nutr. 2008, 47 (5), 266-272.	+
357	Roth, E.; Berna, A.; Beullens, K.; Yarramraju, S.; Lammertyn, J.; Schenk, A.; Nicolai, B. Postharvest quality of integrated and organically produced apple fruit. Postharv. Biol. Technol. 2007, 45 (1), 11-19.	
518	Roussos, P. A. Phytochemicals and antioxidant capacity of orange (Citrus sinensis (l.) Osbeck cv. Salustiana) juice produced under organic and integrated farming system in Greece. Sci. Hortic. 2011, 129 (2), 253-258.	+
358	Roussos, P. A.; Gasparatos, D. Apple tree growth and overall fruit quality under organic and conventional orchard management. Sci. Hortic. 2009, 123 (2), 247-252.	
148	Rutkoviene, V.; Stancevicius, A.; Rutkauskiene, G.; Gavenauskas, A. Farming practices and product quality in Lithuania. Agric. Prod. Nutr. 1997, 103-113.	
297	Rutkowska, B. Nitrate and nitrite content in potatoes from ecological and conventional farms. Rocz. Panstw. Zakl. Hig. 2001, 52, 231-236.	+
149	Ryan, M. H.; Derrick, J. W.; Dann, P. R. Grain mineral concentrations and yield of wheat grown under organic and conventional management. J. Sci. Food Agric. 2004, 84 (3), 207-216.	
305	Saastamoinen, M.; Hietaniemi, V.; Pihlava, J. M.; Eurola, M.; Kontturi, M.; Tuuri, H.; Niskanen, M.; Kangas, A. beta-glucan contents of groats of different oat cultivars in official variety, in organic cultivation, and in nitrogen ferilization trials in Finland. Agr. Food Sci. 2004, 13, 68-79.	+
503	Sablani, S. S.; Andrews, P. K.; Davies, N. M.; Walters, T.; Saez, H.; Syamaladevi, R. M.; Mohekar, P. R. Effect of thermal treatments on phytochemicals in conventionally and organically grown berries. J. Sci. Food Agric. 2010, 90 (5), 769-778.	
212	Samman, S.; Chow, J. W. Y.; Foster, M. J.; Ahmad, Z. I.; Phuyal, J. L.; Petocz, P. Fatty acid composition of edible oils derived from certified organic and conventional agricultural methods. Food Chem. 2008, 109 (3), 670-674.	+

ID, Paper unique identification number. *Papers included in standard weighted meta-analysis: +; †Paper included in meta-analysis of frequency of detectable pesticide residues.

Table 2 cont. List of comparison studies included in the meta-analysis.

ID	Reference	SA*
150	Sanchez, C. A.; Crump, K. S.; Krieger, R. I.; Khandaker, N. R.; Gibbs, J. P. Perchlorate and nitrate in leafy vegetables of North America. Environ. Sci. Technol. 2005, 39 (24), 9391-9397.	
91	Schulzová, V.; Hajšlová, J. In Biologically active compounds in tomatoes from various fertilisation systems, 3rd QLIF Congress: Improving Sustainability in Organic and Low Input Food Production Systems, University of Hohenheim, Stuttgart, Germany, March 20-23; University of Hohenheim, Stuttgart, Germany, 2007.	
436	Schulzova, V.; Peroutka, R.; Hajslova, J. Levels of furanocoumarins in vegetables from organic and conventional farming. Pol. J. Food Nutr. Sci. 2002, 11/52 (1), 25-27.	
264	Seidler-Lozykowska, K.; Golcz, A.; Kozik, E.; Kucharski, W.; Mordalski, R.; Wojcik, J. Evaluation of quality of savory (Satureja hortensis L.) herb from organic cultivation. J. Res. Appl. Agric. Eng. 2007, 52, 48-51.	
543	Seidler-Lozykowska, K.; Golcz, A.; Wojcik, J. Yield and quality of sweet basil, savory, marjoram and thyme raw materials from organic cultivation on the composted manure. J. Res. Appl. Agric. Eng. 2008, 53 (4), 63-66.	
359	Seidler-Lozykowska, K.; Kazmierczak, K.; Kucharski, W. A.; Mordalski, R.; Buchwald, W. Yielding and quality of sweet basil and marjoram herb from organic cultivation. J. Res. Appl. Agric. Eng. 2006, 51 (2), 157-160.	
542	Seidler-Lozykowska, K.; Kozik, E.; Golcz, A.; Mieloszyk, E. Macroelements and essential oil content in the raw material of the selected medicinal plant species from organic cultivation. J. Res. Appl. Agric. Eng. 2006, 51 (2), 161-163.	
545	Seidler-Lozykowska, K.; Mordalski, R.; Kucharski, W.; Golcz, A.; Kozik, E.; Wojcik, J. Economic and qualitative value of the raw material of chosen species of medicinal plants from organic farming. Part I. Yield and quality of garden thyme herb (Thymus vulgaris L.). 2009, 8 (3), 23-28.	
546	Seidler-Lozykowska, K.; Mordalski, R.; Kucharski, W.; Golcz, A.; Kozik, E.; Wojcik, J. Economic and qualitative value of the raw material of chosen species of medicinal plants from organic farming. Part II. Yield and quality of sweet basil herb (Ocimum basilicum L.). 2009, 8 (3), 29-35.	
544	Seidler-Lozykowska, K.; Mordalski, R.; Kucharski, W.; Golcz, A.; Kozik, E.; Wojcik, J. Economic and qualitative value of the raw material of chosen species of medicinal plants from organic farming. Part III. Yield and quality of herb and seed yield of summer savory (Satureja hortensis L.). 2009, 8 (4), 47-53.	
541	Seidler-Lozykowska, K.; Mordalski, R.; Kucharski, W.; Golcz, A.; Kozik, E.; Wojcik, J. Economic and qualitative value of the raw material of chosen species of medicinal plants from organic farming. Part IV. Yield and quality of herb and seed yield of sweet marjoram (Origanum majorana L.). 2009, 8 (4), 55-61.	
335	Sheng, J. P.; Liu, C.; Shen, L. Comparative Study of Minerals and Some Nutrients in Organic Celery and Traditional Celery. Spectrosc. Spectr. Anal. 2009, 29 (1), 247-249.	
296	Shier, N. W.; Kelman, J.; Dunson, J. W. A comparison of crude protein, moisture, ash and crop yield between organic and conventionally grown wheat. Nutr. Rep. Int. 1984, 30, 71-76.	+
73	Sikora, M.; Hallmann, E.; Rembialkowska, E. The content of bioactive compounds in carrots from organic and conventional production in the context of health prevention. Rocz. Panstw. Zakl. Hig. 2009, 60 (3), 217-220.	
215	Singh, A. P.; Luthria, D.; Wilson, T.; Vorsa, N.; Singh, V.; Banuelos, G. S.; Pasakdee, S. Polyphenols content and antioxidant capacity of eggplant pulp. Food Chem. 2009, 114 (3), 955-961.	
520	Soltoft, M.; Bysted, A.; Madsen, K. H.; Mark, A. B.; Bugel, S. G.; Nielsen, J.; Knuthsen, P. Effects of organic and conventional growth systems on the content of carotenoids in carrot roots, and on intake and plasma status of carotenoids in humans. J. Sci. Food Agric. 2011, 91 (4), 767-775.	+

ID, Paper unique identification number. *Papers included in standard weighted meta-analysis: +; †Paper included in meta-analysis of frequency of detectable pesticide residues.

Table 2 cont. List of comparison studies included in the meta-analysis.

ID	Reference	SA*
249	Soltoft, M.; Eriksen, M. R.; Braendholt Traeger, A. W.; Nielsen, J.; Laursen, K. H.; Husted, S.; Halekoh, U.; Knuthsen, P. Comparison of Polyacetylene Content in Organically and Conventionally Grown Carrots Using a Fast Ultrasonic Liquid Extraction Method. J. Agric. Food Chem. 2010, 58 (13), 7673-7679.	+
195	Soltoft, M.; Nielsen, J. H.; Laursen, K. H.; Husted, S.; Halekoh, U.; Knuthsen, P. Effects of Organic and Conventional Growth Systems on the Content of Flavonoids in Onions and Phenolic Acids in Carrots and Potatoes. J. Agric. Food Chem. 2010, 58 (19), 10323-10329.	+
336	Song, S. W.; Lehne, P.; Le, J. G.; Ge, T. D.; Huang, D. F. Yield, Fruit Quality and Nitrogen Uptake of Organically and Conventionally Grown Muskmelon with Different Inputs of Nitrogen, Phosphorus, and Potassium. J. Plant Nutr. 2010, 33 (1), 130-141.	+
92	Sousa, C.; Pereira, D. M.; Pereira, J. A.; Bento, A.; Rodrigues, M. A.; Dopico-Garcia, S.; Valentao, P.; Lopes, G.; Ferreres, F.; Seabra, R. M.; Andrade, P. B. Multivariate analysis of tronchuda cabbage (Brassica oleracea L. var. costata DC) phenolics: Influence of fertilizers. J. Agric. Food Chem. 2008, 56 (6), 2231-2239.	+
54	Sousa, C.; Valentao, P.; Rangel, J.; Lopes, G.; Pereira, J. A.; Ferreres, F.; Seabra, R. A.; Andrade, P. B. Influence of two fertilization regimens on the amounts of organic acids and phenolic compounds of tronchuda cabbage (Brassica oleracea L. Var. costata DC). J. Agric. Food Chem. 2005, 53 (23), 9128-9132.	
337	Stertz, S. C.; Rosa, M. I. S.; de Freitas, R. J. S. Nutritional quality and contaminants of conventional and organic potato (Solanum tuberosum L., Solanaceae) in metropolitan region of Curitiba - Parana - Brazil. Bol. CEPPA 2005, 23, 383-396.	+
287	Stopes, C.; Woodward, L.; Forde, G.; Vogtmann, H. The nitrate content of vegetable and salad crops offered to the consumer as from "organic" or "conventional" production systems. Biol. Agric. Hortic. 1988, 5, 215-221.	
338	Stracke, B. A.; Eitel, J.; Watzl, B.; Mader, P.; Rufer, C. E. Influence of the Production Method on Phytochemical Concentrations in Whole Wheat (Triticum aestivum L.): A Comparative Study. J. Agric. Food Chem. 2009, 57 (21), 10116-10121.	+
339	Stracke, B. A.; RĂĽfer, C. E.; Bub, A.; Seifert, S.; Weibel, F. P.; Kunz, C.; Watzl, B. No effect of the farming system (organic/conventional) on the bioavailability of apple (Malus domestica Bork., cultivar Golden Delicious) polyphenols in healthy men: a comparative study. Eur. J. Nutr. 2009, 1-10.	+
429	Stracke, B. A.; Ruefer, C. E.; Watzl, B. Polyphenol and Carotenoid Content of Organically and Conventionally Produced Apples (Malus domestica Bork., Elstar Variety) and Carrots (Daucus carota L., Narbonne and Nerac Varieties). Ernahrungsumschau 2010, 57 (10), 526-531.	+
93	Stracke, B. A.; Rufer, C. E.; Bub, A.; Briviba, K.; Seifert, S.; Kunz, C.; Watzl, B. Bioavailability and nutritional effects of carotenoids from organically and conventionally produced carrots in healthy men. Br. J. Nutr. 2009, 101 (11), 1664-1672.	
55	Stracke, B. A.; Rufer, C. E.; Weibel, F. P.; Bub, A.; Watzl, B. Three-Year Comparison of the Polyphenol Contents and Antioxidant Capacities in Organically and Conventionally Produced Apples (Malus domestica Bork. Cultivar 'Golden Delicious'). J. Agric. Food Chem. 2009, 57 (11), 4598-4605.	+
220	Strobel, E.; Ahrens, P.; Hartmann, G.; Kluge, H.; Jeroch, H. Contents of substances in wheat, rye and oats at cultivation under conventional and the conditions of organic farming. Bodenkultur 2001, 52 (4), 301-311.	+
510	Talavera-Bianchi, M.; Adhikari, K.; Chambers, E.; Carey, E. E.; Chambers, D. H. Relation between Developmental Stage, Sensory Properties, and Volatile Content of Organically and Conventionally Grown Pac Choi (Brassica rapa var. Mei Qing Choi). J. Food Sci. 2010, 75 (4), S173-S181.	

ID, Paper unique identification number. *Papers included in standard weighted meta-analysis: +; †Paper included in meta-analysis of frequency of detectable pesticide residues.

Table 2 cont. List of comparison studies included in the meta-analysis.

ID	Reference	SA*
522	Talavera-Bianchi, M.; Chambers, D. H.; Chambers, E.; Adhikari, K.; Carey, E. E. Sensory and chemical properties of organically and conventionally grown pac choi (Brassica rapa var. Mei Qing Choi) change little during 18 days of refrigerated storage. LWT--Food Sci. Technol. 2011, 44 (6), 1538-1545.	+
342	Tamaki, M.; Yoshimatsu, K.; Horino, T. Relationships between the duration of organic farming culture and amylographic characteristics and mineral contents of rice. Jpn. J. Crop Sci. 1995, 64 (4), 677-681.	
57	Tarozzi, A.; Hrelia, S.; Angeloni, C.; Morroni, F.; Biagi, P.; Guardigli, M.; Cantelli-Forti, G.; Hrelia, P. Antioxidant effectiveness of organically and non-organically grown red oranges in cell culture systems. Eur. J. Nutr. 2006, 45 (3), 152-158.	+
56	Tarozzi, A.; Marchesi, A.; Cantelli-Forti, G.; Hrelia, P. Cold-storage affects antioxidant properties of apples in caco-2 cells. J. Nutr. 2004, 134 (5), 1105-1109.	+
548†	Tasiopoulou, S.; Chiodini, A. M.; Vellere, F.; Visentin, S. Results of the monitoring program of pesticide residues in organic food of plant origin in Lombardy (Italy). J. Environ. Sci. Health. B. 2007, 42 (7), 835-841.	+
94	Tinttunen, S.; Lehtonen, P. Distinguishing organic wines from normal wines on the basis of concentrations of phenolic compounds and spectral data. Eur. Food Res. Technol. 2001, 212 (3), 390-394.	+
340	Tonutare, T.; Moor, U.; Molder, K.; Poldma, P. Fruit composition of organically and conventionally cultivated strawberry 'Polka'. Agron. Res. 2009, 7 (Sp. Iss. 2), 755-760.	+
95	Toor, R. K.; Savage, G. P.; Heeb, A. Influence of different types of fertilisers on the major antioxidant components of tomatoes. J. Food Compos. Anal. 2006, 19 (1), 20-27.	+
571	Triantafyllidis, V.; Papasavvas, A.; Hela, D.; Salahas, G. Comparison of nitrate content in leafy vegetables conventionally and organically cultivated in Western Greece. J. Environ. Protect. Ecol. 2008, 9 (2), 301-308.	+
341	Turra, C.; Fernandes, E. A. N.; Bacchi, M. A.; Tagliaferro, F. S.; Franca, E. J. Differences between elemental composition of orange juices and leaves from organic and conventional production systems. J. Radioanal. Nucl. Chem. 2006, 270 (1), 203-208.	
584	Ulrichs, C.; Fischer, G.; Büttner, C.; Mewis, I. Comparison of lycopene, B-carotene and phenolic contents of tomato using conventional and ecological horticultural practices, and arbuscular mycorrhizal fungi (AMF). Agron. Colombiana 2008, 26 (1), 40-46.	
506	Unlu, H.; Unlu, H. O.; Karakurt, Y.; Padem, H. Influence of organic and conventional production systems on the quality of tomatoes during storage. Afr. J. Agr. Res. 2011, 6 (3), 538-544.	
512	Unlu, H.; Unlu, H. O.; Karakurt, Y.; Padem, H. Organic and conventional production systems, microbial fertilization and plant activators affect tomato quality during storage. Afr. J. Biotechnol. 2010, 9 (46), 7909-7914.	
497	Vaher, M.; Matso, K.; Levandi, T.; Helmja, K.; Kaljurand, M. Phenolic compounds and the antioxidant activity of the bran, flour and whole grain of different wheat varieties. Proc. Chem. 2010, 2 (1), 76-82.	+
7	Valavanidis, A.; Vlachogianni, T.; Psomas, A.; Zovoili, A.; Siatis, V. Polyphenolic profile and antioxidant activity of five apple cultivars grown under organic and conventional agricultural practices. Int. J. Food Sci. Technol. 2009, 44 (6), 1167-1175.	
343	Varis, E.; Pietila, L.; Koikkalainen, K. Comparison of conventional, integrated and organic potato production in field experiments in Finland. Acta Agric. Scand. Sect. B Soil Plant Sci. 1996, 46 (1), 41-48.	+
96	Veberic, R.; Trobec, M.; Herbinger, K.; Hofer, M.; Grill, D.; Stampar, F. Phenolic compounds in some apple (Malus domestica Borkh) cultivars of organic and integrated production. J. Sci. Food Agric. 2005, 85 (10), 1687-1694.	

ID, Paper unique identification number. *Papers included in standard weighted meta-analysis: +; †Paper included in meta-analysis of frequency of detectable pesticide residues.

Table 2 cont. List of comparison studies included in the meta-analysis.

ID	Reference	SA*
97	Versari, A.; Parpinello, G. P.; Mattioli, A. U.; Galassi, S. Characterisation of Italian commercial apricot juices by high-performance liquid chromatography analysis and multivariate analysis. Food Chem. 2008, 108 (1), 334-340.	+
3	Vian, M. A.; Tomao, V.; Coulomb, P. O.; Lacombe, J. M.; Dangles, O. Comparison of the anthocyanin composition during ripening of Syrah grapes grown using organic or conventional agricultural practices. J. Agric. Food Chem. 2006, 54 (15), 5230-5235.	
502	Vilela De Resende, J. T.; Marchese, A.; Pinheiro Camargo, L. K.; Marodin, J. C.; Camargo, C. K.; Ferreira Morales, R. G. Yield and Postharvest Quality of Onion Cultivars in the Organic and Conventional Cropping Systems. Bragantia 2010, 69 (2), 305-311.	
508	Vinkovic-Vrcek, I.; Bojic, M.; Zuntar, I.; Mendas, G.; Medic-Saric, M. Phenol content, antioxidant activity and metal composition of Croatian wines deriving from organically and conventionally grown grapes. Food Chem. 2011, 124 (1), 354-361.	+
281	Wang, G. Y.; Abe, T.; Sasahara, T. Concentrations of Kjeldahl-diogested nitrogen, amylose and amino acids in milled grains of rice (Oryza sativa L.) cultivated under organic and customary farming practices. Jpn. J. Crop Sci. 1998, 67, 307-311.	+
4	Wang, S. Y.; Chen, C. T.; Sciarappa, W.; Wang, C. Y.; Camp, M. J. Fruit quality, antioxidant capacity, and flavonoid content of organically and conventionally grown blueberries. J. Agric. Food Chem. 2008, 56 (14), 5788-5794.	+
8	Warman, P. R.; Havard, K. A. Yield, vitamin and mineral contents of organically and conventionally grown carrots and cabbage. Agric. Ecosyst. Environ. 1997, 61 (2-3), 155-162.	+
2	Warman, P. R.; Havard, K. A. Yield, vitamin and mineral contents of organically and conventionally grown potatoes and sweet corn. Agric. Ecosyst. Environ. 1998, 68 (3), 207-216.	+
572	Wawrzyniak, A.; Kwiatkowski, S.; Gronowska-Senger, A. Evaluation of nitrate, nitrite and total protein content in selected vegetables cultivated conventionally and ecologically. Rocz. Panstw. Zakl. Hig. 1997, 48 (2), 179-186.	+
98	Weibel, F. P.; Bickel, R.; Leuthold, S.; Alfoldi, T. Are organically grown apples tastier and healthier? A comparative field study using conventional and alternative methods to measure fruit quality. Acta Hortic. 2000, 517, 417-426.	
103	Weibel, F. P.; Treutter, D.; Graf, U.; Haesseli, A. In Sensory and health-related fruit quality of organic apples. A comparative field study over three years using conventional and holistic methods to assess fruit quality, 11th International Conference on Cultivation Technique and Phytopathological Problems in Organic Fruit-Growing, University of Hohenheim, Germany, February 22-24; University of Hohenheim, Germany, 2004; pp 185-195.	
304	Wisniewska, K.; Rembialkowska, E.; Hallmann, E.; Rusaczonek, A.; Lueck, L.; Leifert, C. In The antioxidant compounds in rat experimental diets based on plant materials from organic, low-input and conventional agricultural systems, 16th IFOAM Organic World Congress, Modena, Italy, June 16-20; Modena, Italy, 2008.	
299	Wolfson, J. L.; Shearer, G. Amino acid composition of grain protein of maize grown with and without pesticides and standard commercial fertilizers. Agron. J. 1981, 73, 611-613.	+
1	Wszelaki, A. L.; Delwiche, J. F.; Walker, S. D.; Liggett, R. E.; Scheerens, J. C.; Kleinhenz, M. D. Sensory quality and mineral and glycoalkaloid concentrations in organically and conventionally grown redskin potatoes (Solanum tuberosum). J. Sci. Food Agric. 2005, 85 (5), 720-726.	
99	Wunderlich, S. M.; Feldman, C.; Kane, S.; Hazhin, T. Nutritional quality of organic, conventional, and seasonally grown broccoli using vitamin C as a marker. Int. J. Food Sci. Nutr. 2008, 59 (1), 34-45.	
100	Yanez, J. A.; Miranda, N. D.; Remsberg, C. A.; Ohgami, Y.; Davies, N. M. Stereospecific high-performance liquid chromatographic analysis of eriodictyol in urine. J. Pharm. Biomed. Anal. 2007, 43 (1), 255-262.	

ID, Paper unique identification number. *Papers included in standard weighted meta-analysis: +; †Paper included in meta-analysis of frequency of detectable pesticide residues.

Table 2 cont. List of comparison studies included in the meta-analysis.

ID	Reference	SA*
101	Yanez, J. A.; Remsberg, C. M.; Miranda, N. D.; Vega-Villa, K. R.; Andrews, P. K.; Davies, N. M. Pharmacokinetics of selected chiral flavonoids: Hesperetin, naringenin and eriodictyol in rats and their content in fruit juices. Biopharm. Drug Dispos. 2008, 29 (2), 63-82.	+
102	Yildirim, H. K.; Akcay, Y. D.; Guvenc, U.; Sozmen, E. Y. Protection capacity against low-density lipoprotein oxidation and antioxidant potential of some organic and non-organic wines. Int. J. Food Sci. Nutr. 2004, 55 (5), 351-362.	
509	You, Q.; Wang, B.; Chen, F.; Huang, Z.; Wang, X.; Luo, P. G. Comparison of anthocyanins and phenolics in organically and conventionally grown blueberries in selected cultivars. Food Chem. 2011, 125 (1), 201-208.	
58	Young, J. E.; Zhao, X.; Carey, E. E.; Welti, R.; Yang, S. S.; Wang, W. Q. Phytochemical phenolics in organically grown vegetables. Mol. Nutr. Food Res. 2005, 49 (12), 1136-1142.	+
513	Zaccone, C.; Di Caterina, R.; Rotunno, T.; Quinto, M. Soil - farming system - food - health: Effect of conventional and organic fertilizers on heavy metal (Cd, Cr, Cu, Ni, Pb, Zn) content in semolina samples. Soil Tillage Res. 2010, 107 (2), 97-105.	+
59	Zafrilla, P.; Morillas, J.; Mulero, J.; Cayuela, J. M.; Martinez-Cacha, A.; Pardo, F.; Nicolas, J. M. L. Changes during storage in conventional and ecological wine: Phenolic content and antioxidant activity. J. Agric. Food Chem. 2003, 51 (16), 4694-4700.	
60	Zhao, X.; Carey, E. E.; Young, J. E.; Wang, W. Q.; Iwamoto, T. Influences of organic fertilization, high tunnel environment, and postharvest storage on phenolic compounds in lettuce. Hortscience 2007, 42 (1), 71-76.	+
152	Zhao, X.; Iwamoto, T.; Carey, E. E. Antioxidant capacity of leafy vegetables as affected by high tunnel environment, fertilisation and growth stage. J. Sci. Food Agric. 2007, 87 (14), 2692-2699.	+
61	Zhao, X.; Nechols, J. R.; Williams, K. A.; Wang, W. Q.; Carey, E. E. Comparison of phenolic acids in organically and conventionally grown pac choi (Brassica rapa L. chinensis). J. Sci. Food Agric. 2009, 89 (6), 940-946.	
475	Zoerb, C.; Betsche, T.; Langenkaemper, G. Search for Diagnostic Proteins To Prove Authenticity of Organic Wheat Grains (Triticum aestivum L.). J. Agric. Food Chem. 2009, 57 (7), 2932-2937.	+
363	Zoerb, C.; Niehaus, K.; Barsch, A.; Betsche, T.; Langenkamper, G. Levels of compounds and metabolites in wheat ears and grains in organic and conventional agriculture. J. Agric. Food Chem. 2009, 57 (20), 9555-9562.	+
511	Zuchowski, J.; Jonczyk, K.; Pecio, L.; Oleszek, W. Phenolic acid concentrations in organically and conventionally cultivated spring and winter wheat. J. Sci. Food Agric. 2011, 91 (6), 1089-1095.	+

ID, Paper unique identification number. *Papers included in standard weighted meta-analysis: +; †Paper included in meta-analysis of frequency of detectable pesticide residues.

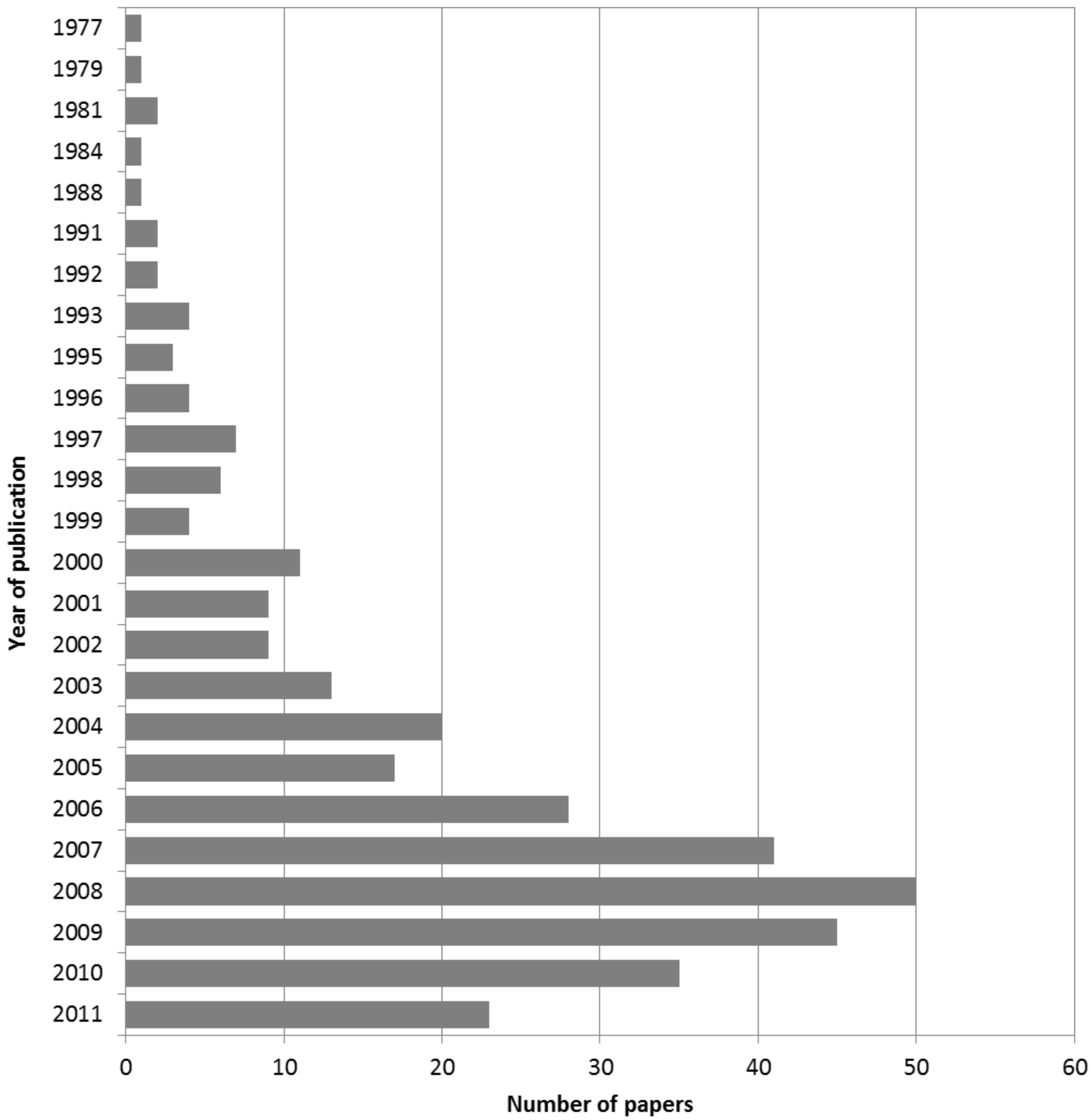

Figure 1. Number of papers included in the meta-analysis by year of publication.

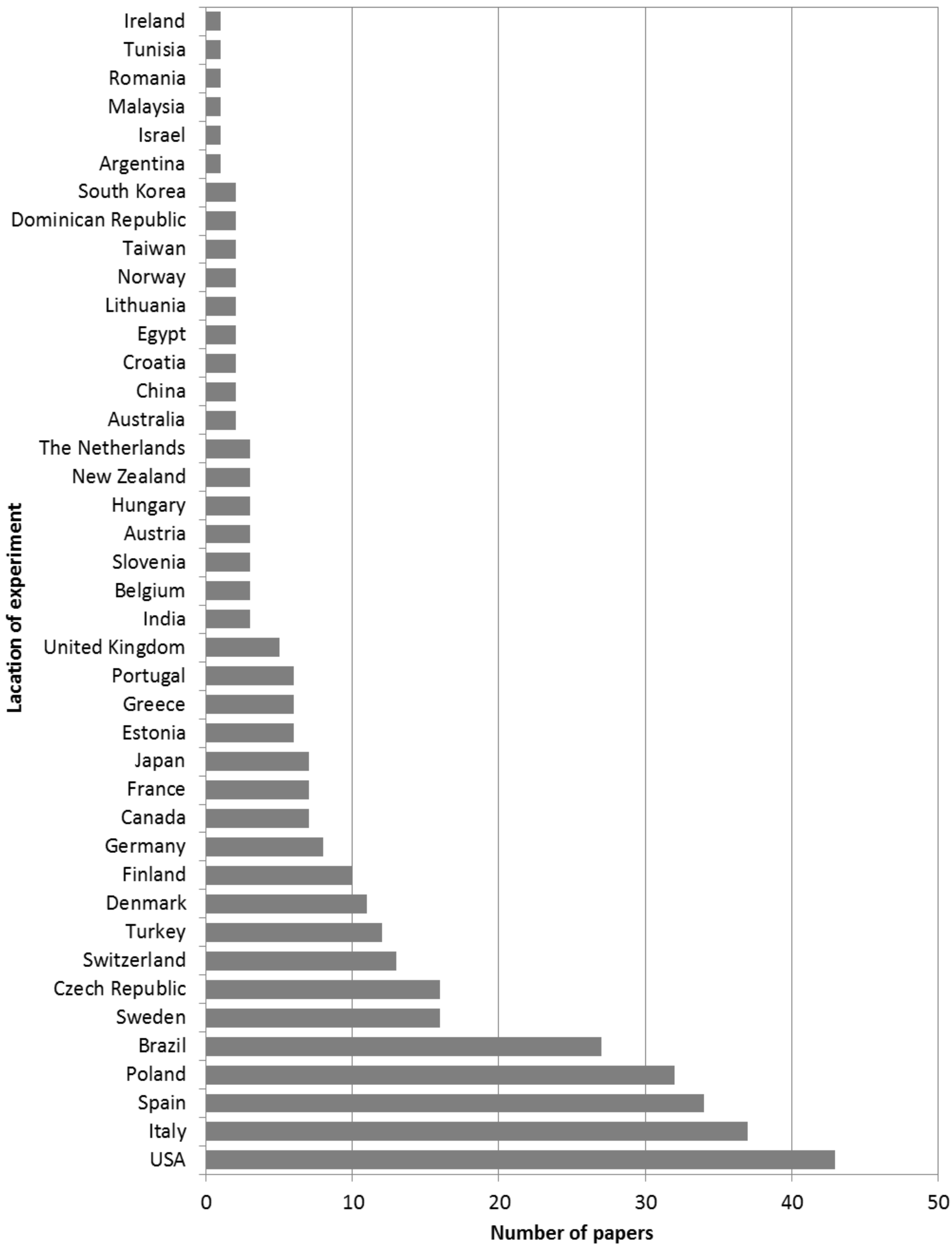

Figure 2. Number of papers included in the meta-analysis by location of the experiment (country).

Table 3. Study type, location and crop/product information of the comparison studies included in the meta-analysis.

ID	ST	Location	Crop/Product	Group
1	EX	USA	potato (tuber)	Vegetables
2	EX	Canada	potato (tuber), sweet corn (kernel)	Vegetables
3	EX	France	grape (fruit)	Fruits
4	CF	USA	blueberry (fruit)	Fruits
5	CF	Finland	strawberry (fruit)	Fruits
6	BS	Brazil	grape (juice)	Fruits
7	CF	Greece	apple (fruit)	Fruits
8	EX	Canada	cabbage (leaves), carrot (root)	Vegetables
9	EX	Portugal	potato (tuber)	Vegetables
10	EX	Spain	mandarin (juice)	Fruits
11	EX	USA	tomato (fruit)	Vegetables
12	CF	Spain	strawberry (fruit)	Fruits
13	EX	USA	pepper (fruit), tomato (fruit)	Vegetables
14	CF	USA	blueberry (fruit), corn (grain)	Fruits, Cereals
15	CF	USA	tomato (fruit)	Vegetables
16	CF	Italy	potato (tuber)	Vegetables
17	EX	Spain	mandarin (juice)	Fruits
18	EX	Portugal	cabbage (Tronchuda) (leaves)	Vegetables
19	EX	Sweden	cabbage (leaves), carrot (root), onion (bulb), pea, pea (pod), potato (tuber)	Vegetables
20	CF	Spain	banana (fruit)	Fruits
21	CF	Czech Republic	potato (tuber)	Vegetables
22	EX	Czech Republic	potato (tuber)	Vegetables
23	EX	Taiwan	tomato (fruit)	Vegetables
24	EX	Estonia	black currant (fruit)	Fruits
25	CF	Italy	apple (fruit)	Fruits
26	EX	Italy	plum (fruit)	Fruits
27	CF	Spain	pepper (fruit)	Vegetables
28	CF	Belgium	hop (raw)	Other
29	EX	USA	kiwifruit (fruit)	Fruits
30	CF	Finland	black currant (fruit)	Fruits
31	CF	Finland	black currant (fruit)	Fruits
32	CF	Finland	strawberry (fruit)	Fruits
33	EX	Italy	apple (fruit)	Fruits
34	CF	USA	grapefruit (juice)	Fruits
35	CF	Taiwan	tomato (fruit)	Vegetables
36	CF	Italy	grape (berry skin), grape (must)	Fruits
37	CF	Spain	banana (fruit)	Fruits
38	EX	Italy	peach (fruit), pear (fruit)	Fruits
39	EX	Italy	peach (fruit), pear (fruit)	Fruits
40	EX	France	tomato (fruit), tomato (puree)	Vegetables
41	EX	Sweden	onion (bulb)	Vegetables
42	CF	Argentina	swiss chard (leaves)	Vegetables
43	EX	Spain	grape (wine, red)	Fruits

ID, Paper unique identification number (see Table 2 for references); ST, Study type (CF – Comparison of Farms, BS – Basket Study, EX – Controlled Experiment); *Paper included in meta-analysis of frequency of detectable pesticide residues.

Table 3 cont. Study type, location and crop/product information of the comparison studies included in the meta-analysis.

ID	ST	Location	Crop/Product	Group
44	CF	Italy	tomato (fruit)	Vegetables
45	EX	Sweden	strawberry (fruit)	Fruits
46	CF	Spain	tomato (fruit)	Vegetables
47	EX	Italy	tomato (fruit)	Vegetables
48	EX	USA	apple (fruit)	Fruits
49	CF	USA	tomato (fruit), tomato (sauce)	Vegetables
50	CF	Italy	orange (fruit)	Fruits
51	CF	Poland	apple (puree)	Fruits
52	CF	USA	broccoli (flower)	Vegetables
53	EX	Spain	tomato (fruit)	Vegetables
54	CF	Portugal	cabbage (Tronchuda) (leaves)	Vegetables
55	CF	Switzerland	apple (fruit)	Fruits
56	CF	Italy	apple (fruit)	Fruits
57	BS	Italy	orange (red) (fruit)	Fruits
58	EX	USA	collard (leaves), lettuce (leaves), pac choi (leaves)	Vegetables
59	CF	Spain	grape (wine, red), grape (wine, white)	Fruits
60	EX	USA	lettuce (leaves)	Vegetables
61	EX	USA	pac choi (leaves)	Vegetables
62	CF	France	peach (fruit)	Fruits
64	CF	Poland	tomato (fruit)	Vegetables
65	CF	Switzerland	grape (wine)	Fruits
66	BS	United Kingdom (marketed)	carrot (soup), lentils (soup), tomato (soup), vegetable (soup)	Vegetables
67	CF	Switzerland	apple (fruit)	Fruits
68	EX	Spain	pepper (fruit)	Vegetables
70	BS	Brazil	broccoli (flower), cabbage (white) (leaves), carrot (root), onion (bulb), potato (tuber)	Vegetables
72	CF	Poland	apple (juice), black currant (juice), pear (juice), beetroot (juice), carrot (juice), celery (juice)	Fruits, Vegetables
73	CF	Poland	carrot (root)	Vegetables
74	CF	Austria	apple (fruit)	Fruits
75	EX	Italy	chicory (leaves)	Vegetables
76	BS	Malaysia (marketed)	cabbage (leaves), chinese kale (leaves), chinese mustard (leaves), lettuce (leaves), spinach (leaves)	Vegetables
77	BS	USA (marketed)	marinara pasta sauce (with vegetables)	Vegetables
78	CF	Croatia	strawberry (puree)	Fruits
79	CF	Brazil	broccoli (stalks), potato (peel), radish (skin), spinach (stalks), pumpkin (seeds)	Vegetables, Oil seeds and pulses
80	CF	Brazil	chinese cabbage (leaves), maize (bran)	Vegetables, Cereals
81	BS	Australia (marketed)	orange (fruit), cabbage (leaves), carrot (root), lettuce (leaves)	Fruits, Vegetables
82	BS	Spain	lettuce (leaves)	Vegetables
83	BS	Italy, Spain, Germany, France, The Netherlands	broccoli (flower), cabbage (red) (leaves)	Vegetables

ID, Paper unique identification number (see Table 2 for references); ST, Study type (CF – Comparison of Farms, BS – Basket Study, EX – Controlled Experiment); *Paper included in meta-analysis of frequency of detectable pesticide residues.

Table 3 cont. Study type, location and crop/product information of the comparison studies included in the meta-analysis.

ID	ST	Location	Crop/Product	Group
84	EX	India	tea (leaves)	Other
85	EX	Spain	pepper (sweet) (fruit)	Vegetables
86	EX	Spain	pepper (sweet) (fruit)	Vegetables
87	CF	Poland	potato (tuber)	Vegetables
88	CF	Japan	chinese cabbage (leaves), pepper (fruit), qing-gen-cai (leaves), spinach (leaves), welsh onion (bulb)	Vegetables
89	BS	Italy, Spain	apricot (nectar), peach (nectar), pear (juice), pear (nectar)	Fruits
90	EX	Italy	tomato (fruit)	Vegetables
91	EX	Czech Republic	tomato (fruit)	Vegetables
92	EX	Portugal	cabbage (leaves)	Vegetables
93	CF	Germany	carrot (root)	Vegetables
94	BS	France	grape (wine, red), grape (wine, white)	Fruits
95	EX	Sweden	tomato (fruit)	Vegetables
96	CF	Austria, Slovenia	apple (fruit)	Fruits
97	BS	Italy	apricot (juice)	Fruits
98	CF	Switzerland	apple (fruit)	Fruits
99	BS	USA (marketed)	broccoli (flower)	Vegetables
100	BS	Not Specified	lemon (juice)	Fruits
101	BS	USA (marketed)	apple (juice), grapefruit (juice), lemon (juice), lime (juice), orange (juice), tomato (juice)	Fruits, Vegetables
102	BS	Turkey	grape (wine)	Fruits
103	CF	Switzerland	apple (fruit)	Fruits
104	EX	Spain	pepper (sweet) (fruit)	Vegetables
106	BS	South Korea	kale (leaves)	Vegetables
107	BS	Turkey	grape (wine, white)	Fruits
108	EX	Canada	wheat (grain)	Cereals
110	EX	Brazil	potato (tuber)	Vegetables
111	CF	New Zealand	kiwifruit (fruit)	Fruits
118	EX	Turkey	spinach (leaves)	Vegetables
119	EX	USA	tomato (fruit)	Vegetables
120	EX	USA	tomato (fruit)	Vegetables
121	CF	Italy	chicory (leaves), endive, prickly lettuce (leaves), rocket (leaves)	Vegetables
122	CF	Poland	carrot (root)	Vegetables
123	EX	Sweden	oat (grain)	Cereals
124	CF	Brazil	apple (fruit)	Fruits
126	EX	Finland	oat (grain)	Cereals
127	CF	Brazil	passion fruit (fruit)	Fruits
128	CF	Spain	banana (fruit)	Fruits
130	BS	Brazil	arugula (leaves), lettuce (leaves), watercress (leaves)	Vegetables
131	CF	Denmark	onion (bulb), pea, pea (raw)	Vegetables
132	EX	Canada	strawberry (fruit)	Fruits

ID, Paper unique identification number (see Table 2 for references); ST, Study type (CF – Comparison of Farms, BS – Basket Study, EX – Controlled Experiment); *Paper included in meta-analysis of frequency of detectable pesticide residues.

Table 3 cont. Study type, location and crop/product information of the comparison studies included in the meta-analysis.

ID	ST	Location	Crop/Product	Group
133	EX	Norway	carrot (root)	Vegetables
134	CF	Finland	strawberry (fruit)	Fruits
136	BS, CF, EX	Sweden	carrot (root), potato (tuber), potato (tuber), rye (grain), wheat (grain)	Vegetables, Cereals
137	EX	Denmark	apple (fruit), carrot (root), kale (leaves), kale (leaves, dried), pea, pea (dried), potato (tuber)	Fruits, Vegetables
140	EX	Switzerland	beetroot (root)	Vegetables
141	EX	Italy	potato (tuber)	Vegetables
142	EX	Italy	wheat (winter) (flour), wheat (winter) (grain)	Cereals
143	CF	Brazil	kale (leaves)	Vegetables
144	CF	Japan	spinach (leaves)	Vegetables
146	BS	Brazil	mango (fruit)	Fruits
147	CF	USA	potato (tuber)	Vegetables
148	EX	Lithuania	cabbage (leaves), carrot (root), potato (tuber)	Vegetables
149	CF	Australia	wheat (grain)	Cereals
150	BS/CF	USA	leafy vegetables (leaves)	Vegetables
152	EX	USA	pac choi (leaves)	Vegetables
154	EX	Spain	pineapple (fruit)	Fruits
156	EX	Czech Republic	wheat (grain)	Cereals
163	EX	Finland	oat (grain)	Cereals
164	CF	Finland	strawberry (fruit)	Fruits
165	CF	Poland	tomato (fruit)	Vegetables
166	EX	Poland	onion (bulb)	Vegetables
168	EX	USA	kiwifruit (fruit)	Fruits
170	BS	Spain	tomato (fruit)	Vegetables
171	BS	Spain	tomato (fruit)	Vegetables
172	BS	Spain	tomato (fruit)	Vegetables
175	CF	The Netherlands, Austria, Denmark	animal feed (chicken feed)	Compound food
179	EX	Czech Republic	wheat (winter) (grain)	Cereals
180	EX	Czech Republic	wheat (winter) (grain)	Cereals
181	CF	France	carrot (root), celeriac (root)	Vegetables
182	EX	Turkey	strawberry (fruit)	Fruits
184	BS/CF	Italy	grape (wine, red)	Fruits
185	EX	Italy	wheat (hard) (grain), wheat (soft) (grain)	Cereals
187	CF	New Zealand	pea (raw), barley (grain), wheat (grain)	Vegetables, Cereals
189	BS	Italy (marketed)	sunflower (oil)	Oil seeds and pulses
195	EX	Denmark	carrot (root), onion (bulb), potato (tuber)	Vegetables
201	CF	USA	eggplant (fruit)	Vegetables
202	BS	Egypt	potato (tuber)	Vegetables
203	BS	Egypt	cucumber (fruit)	Vegetables

ID, Paper unique identification number (see Table 2 for references); ST, Study type (CF – Comparison of Farms, BS – Basket Study, EX – Controlled Experiment); *Paper included in meta-analysis of frequency of detectable pesticide residues.

Table 3 cont. Study type, location and crop/product information of the comparison studies included in the meta-analysis.

ID	ST	Location	Crop/Product	Group
206	CF	Spain	grape (wine, white)	Fruits
208	BS	Poland	cabbage (leaves), carrot (root), onion (bulb), potato (tuber)	Vegetables
210	EX	Tunisia	tomato (fruit)	Vegetables
211	CF	Italy	wheat (grain)	Cereals
212	BS	Not Specified	coconut (oil), olive (oil), canola (oil), mustard seed (oil), sesame (oil)	Fruits, Vegetables, Oil seeds and pulses
215	CF	USA	eggplant (fruit)	Vegetables
218	EX	Sweden	wheat (spring) (grain), wheat (winter) (grain)	Cereals
219	EX	Sweden	wheat (spring) (grain), wheat (winter) (grain)	Cereals
229	CF	France	apple (fruit), bean (French) (pod), carrot (root), lettuce (leaves), spinach (leaves), tomato (fruit), barley (grain), wheat (grain), buckwheat (seeds)	Fruits, Vegetables, Cereals, Oil seeds and pulses
233	CF	Belgium	wheat (grain)	Cereals
249	EX	Denmark	carrot (root)	Vegetables
251	EX	Czech Republic	potato (tuber)	Vegetables
252	EX	Czech Republic	potato (tuber)	Vegetables
253	EX	Turkey	lettuce (Iceberg, Yedikule) (leaves)	Vegetables
254	EX	Poland	potato (tuber)	Vegetables
255	CF	Italy	chicory (leaves), lettuce (leaves), rocket (leaves)	Vegetables
259	CF	Sweden	carrot (root), tomato (fruit), wheat (grain)	Vegetables, Cereals
260	EX	United Kingdom	potato (tuber)	Vegetables
261	EX	Sweden	wheat (winter) (flour), wheat (winter) (grain)	Cereals
262	EX	Sweden	wheat (winter) (flour)	Cereals
264	EX	Poland	savory (leaves)	Herbs and spices
265	EX	Czech Republic	barley (grain), barley (wort)	Cereals
269	CF	Canada	apple (fruit)	Fruits
270	CF	Canada	apple (fruit)	Fruits
271	CF	Japan	rice (grain)	Cereals
272	EX	Sweden	wheat (winter) (grain)	Cereals
273	EX	USA	tomato (fruit)	Vegetables
275	EX	Czech Republic	wheat (winter) (grain)	Cereals
276	CF	Brazil	tomato (fruit)	Vegetables
277	BS	Spain	carrot (root), lettuce (leaves), pea (raw)	Vegetables
278	CF	Czech Republic	triticale (grain)	Cereals
279	EX	Lithuania	pumpkin (jam with apple), pumpkin (jam with black currant), pumpkin (sweetmeat with apple), pumpkin (sweetmeat with black currant), pumpkin (fruit)	Fruits, Vegetables
281	CF	Japan	rice (grain)	Cereals
282	EX	USA	sweet potato (root)	Vegetables
283	CF	Dominican Republic	banana (fruit)	Fruits
285	EX	Italy	rice (grain)	Cereals
286	BS	Poland	beetroot (root), cabbage (white) (leaves), carrot (root), parsley (root), potato (tuber)	Vegetables

ID, Paper unique identification number (see Table 2 for references); ST, Study type (CF – Comparison of Farms, BS – Basket Study, EX – Controlled Experiment); *Paper included in meta-analysis of frequency of detectable pesticide residues.

Table 3 cont. Study type, location and crop/product information of the comparison studies included in the meta-analysis.

ID	ST	Location	Crop/Product	Group
287	BS	Germany	cabbage (leaves), carrot (root), lettuce (leaves), potato (tuber)	Vegetables
288	BS	Dominican Republic	banana (fruit)	Fruits
289	EX	Czech Republic	wheat (winter) (grain)	Cereals
290	BS, CF	Israel	banana (fruit), grape (fruit), grapefruit (juice), mango (fruit), orange (juice), carrot (root), spinach (leaves), tomato (fruit), sweet corn (kernel)	Fruits, Vegetables, Cereals
291	EX	Czech Republic	potato (tuber)	Vegetables
292	EX	Norway	barley (grain), oat (grain), wheat (grain)	Cereals
294	CF	USA	tomato (fruit)	Vegetables
295	BS	USA	barley (grain), maize (corn meal), maize (processed foods), rice (brown), rice (brown) (grain), lentils (grain), lentils (seeds)	Cereals, Oil seeds and pulses
296	CF	USA	wheat (grain)	Cereals
297	CF	Poland	potato (tuber)	Vegetables
298	EX	Hungary	pepper (red) (fruit)	Vegetables
299	CF	USA	maize (grain)	Cereals
300	CF	Poland	pepper (red) (fruit)	Vegetables
301	CF	Poland	pepper (fruit)	Vegetables
302	CF	Poland	apple (juice), apple (mousse)	Fruits
303	CF	Poland	apple (pomace)	Fruits
304	EX	United Kingdom	rat feed	Compound food
305	EX	Finland	oat (groat)	Cereals
306	BS	Turkey	olive (extra virgin oil)	Vegetables
307	EX	Brazil	chicory (leaves), lettuce (leaves), rocket (leaves)	Vegetables
308	EX	Estonia	carrot (root)	Vegetables
310	EX	Italy	wheat (grain)	Cereals
311	CF/EX	Spain	banana (fruit)	Fruits
312	CF	Spain	pepper (fruit)	Vegetables
313	CF	India	mandarin (nagpur) (fruit)	Fruits
314	EX	Hungary	apple (fruit)	Fruits
315	CF	Spain	grape (fruit)	Fruits
316	EX	Spain	olive (virgin oil)	Vegetables
318	EX	Estonia	potato (tuber)	Vegetables
319	EX	Sweden	wheat (winter) (flour), wheat (winter) (grain)	Cereals
323	EX	Sweden	wheat (grain), wheat (winter) (grain)	Cereals
324	BS	Brazil	broccoli (flower)	Vegetables
327	EX	Japan	soybean (seeds)	Oil seeds and pulses
328	CF	Italy	olive (extra virgin oil)	Vegetables
330	EX	Turkey	lettuce (iceberg) (leaves)	Vegetables
331	BS	Poland	cabbage (leaves), carrot (root), potato (tuber)	Vegetables
333	EX	Canada	wheat (spring) (grain)	Cereals
334	CF, EX	Germany, Italy, Switzerland	wheat (grain), wheat (hard) (grain), wheat (soft) (grain), wheat (grain)	Cereals

ID, Paper unique identification number (see Table 2 for references); ST, Study type (CF – Comparison of Farms, BS – Basket Study, EX – Controlled Experiment); *Paper included in meta-analysis of frequency of detectable pesticide residues.

Table 3 cont. Study type, location and crop/product information of the comparison studies included in the meta-analysis.

ID	ST	Location	Crop/Product	Group
335	BS/CF	China	celeriac, celery (root)	Vegetables
336	EX	China	muskmelon (fruit)	Fruits
337	BS	Brazil	potato (tuber)	Vegetables
338	EX	Switzerland	wheat (grain)	Cereals
339	CF	Switzerland	apple (fruit)	Fruits
340	CF	Estonia	strawberry (fruit)	Fruits
341	CF	Brazil	orange (juice)	Fruits
342	CF	Japan	rice (grain)	Cereals
343	EX	Finland	potato (tuber)	Vegetables
345	BS	Poland	apple (puree)	Fruits
346	BS	Greece	peach (fruit), beetroot, French bean, lettuce (leaves), pepper (fruit), potato (tuber), tomato (fruit), lentils (seeds), amarantus blitum	Fruits, Vegetables, Oil seeds and pulses, Herbs and spices
347	BS	Not Specified	lettuce (leaves), tomato (fruit)	Vegetables
348	EX	Denmark	animal feed (rat feed)	Compound food
354	CF	Spain	grape (fruit)	Fruits
357	CF	Belgium	apple (juice)	Fruits
358	CF	Greece	apple (fruit)	Fruits
359	EX	Poland	basil (leaves), marjoram (leaves, dried)	Herbs and spices
360	CF	Poland	pepper (fruit)	Vegetables
361	EX	Poland	pepper (fruit)	Vegetables
363	EX	Switzerland	wheat (grain)	Cereals
364	CF, BS/CF	Poland	carrot (root), potato (tuber)	Vegetables
365	EX	Poland	onion (bulb)	Vegetables
422	EX	Italy	sunflower (seeds)	Oil seeds and pulses
424	EX	Switzerland	wheat (winter) (grain)	Cereals
426	EX	USA	apple (fruit)	Fruits
428	EX	Czech Republic	barley (grain)	Cereals
429	CF	Germany	apple (fruit), carrot (root)	Fruits, Vegetables
430	CF/EX	Italy	tomato (fruit)	Vegetables
431	CF/EX	Italy	strawberry (fruit)	Fruits
432	CF	Japan	tomato (fruit)	Vegetables
433	CF	Slovenia	apple (fruit)	Fruits
434	EX	Turkey	tomato (fruit)	Vegetables
435	EX	Sweden	leek (raw)	Vegetables
436	CF	Sweden	celeriac (root), parsnip (root)	Vegetables
438	CF	Brazil	tomato (fruit)	Vegetables
442	EX	Italy	cauliflower (curd)	Vegetables
443	EX	South Korea	pepper (hot) (fruit)	Vegetables
446	EX	Denmark	apple (fruit), carrot (root), kale (leaves), kale (leaves, cooked), pea (cooked), potato (tuber)	Fruits, Vegetables

ID, Paper unique identification number (see Table 2 for references); ST, Study type (CF – Comparison of Farms, BS – Basket Study, EX – Controlled Experiment); *Paper included in meta-analysis of frequency of detectable pesticide residues.

Table 3 cont. Study type, location and crop/product information of the comparison studies included in the meta-analysis.

ID	ST	Location	Crop/Product	Group
448	BS	Portugal (marketed); Spain and Switzerland (produced)	cereals (baby food)	Compound food
449	BS	Portugal	cabbage (savoy) (leaves), carrot (root), lettuce (leaves), savoy cabbage (leaves), spinach (leaves)	Vegetables
452*	BS/CF	The Netherlands	carrot (root), lettuce (iceberg) (leaves), lettuce (leaves)	Vegetables
460*	BS	Denmark	apple (fruit), banana (fruit), beetroot, black currant (fruit), broccoli (flower), cabbage (leaves), carrot (root), chickpea (seeds), cucumber (fruit), grape (fruit), grapefruit (fruit), kale (leaves), leek, lemon (fruit), mandarin (fruit), mushroom, onion (bulb), orange (fruit), parsley (root), parsnip (root), pear (fruit), potato (tuber), raspberry (fruit), tea (dry leaves), tomato (fruit)	Fruits, Vegetables, Seeds, Other
462	EX	Estonia	barley (grain), oat (spring) (grain), wheat (spring) (grain)	Cereals
463	EX	Czech Republic	basil (leaves)	Herbs and spices
471	EX	USA	pecan (kernel)	Fruits
475	EX	Switzerland	wheat (grain)	Cereals
477	EX	Brazil	strawberry (fruit)	Fruits
482	EX	USA	tomato (fruit)	Vegetables
483	EX	Romania	wheat (grain)	Cereals
484	EX	Slovenia	red beet (root)	Vegetables
486	CF/EX, EX	Spain	eggplant (fruit)	Vegetables
488	CF	USA	strawberry (fruit)	Fruits
489	EX	Turkey	cabbage (white) (leaves)	Vegetables
490	EX	Turkey	spinach (leaves)	Vegetables
491	CF	Germany	grape (skin extract)	Fruits
492	BS	Brazil	apple (fruit), banana (fruit), mango (fruit), orange (fruit), papaya (fruit), tangerine (fruit), broccoli (flower), cabbage (white) (leaves), carrot (root), onion (bulb), potato (tuber), tomato (fruit)	Fruits, Vegetables
493	CF/EX	Brazil	tomato (fruit)	Vegetables
494*	BS	Brazil	tomato (fruit)	Vegetables
495	CF	United Kingdom	potato (tuber)	Vegetables
497	EX	Estonia	wheat (spring) (bran), wheat (spring) (grain)	Cereals
500	BS	Ireland	baby food (berry-based dessert), baby food (chicken and vegetable dinner)	Compound food
501	EX	Italy	apricot (fruit)	Fruits
502	EX	Brazil	onion (bulb)	Vegetables
503	CF	USA	blueberry (fruit), raspberry (fruit)	Fruits
504	CF	Spain	grape (fruit), grape (wine)	Fruits
505	CF	Brazil	coffee (beans), coffee (green)	Other

ID, Paper unique identification number (see Table 2 for references); ST, Study type (CF – Comparison of Farms, BS – Basket Study, EX – Controlled Experiment); *Paper included in meta-analysis of frequency of detectable pesticide residues.

Table 3 cont. Study type, location and crop/product information of the comparison studies included in the meta-analysis.

ID	ST	Location	Crop/Product	Group
506	EX	Turkey	tomato (fruit)	Vegetables
508	CF	Croatia	grape (red wine), grape (white wine), grape (wine, red), grape (wine, white)	Fruits
509	EX	USA	blueberry (fruit)	Fruits
510	EX	USA	pac choi (leaves)	Vegetables
511	EX	Poland	wheat (spring) (grain), wheat (winter) (grain)	Cereals
512	EX	Turkey	tomato (fruit)	Vegetables
513	EX	Italy	durum wheat (semolina)	Cereals
517	CF/EX	New Zealand	kiwifruit (fruit)	Fruits
518	CF/EX	Greece	orange (juice)	Fruits
519	CF/EX	Spain	mandarin (juice)	Fruits
520	EX	Denmark	carrot (root), food (whole diet)	Vegetables, Compound food
522	EX	USA	pac choi (leaves)	Vegetables
524	CF, EX, CF/EX	Italy	clementine (fruit), orange (fruit), peach (fruit), strawberry (fruit)	Fruits
525	EX	Brazil	acerola (fruit), persimmon (fruit), strawberry (fruit)	Fruits
526	EX	United Kingdom	wheat (grain)	Cereals
527	BS/EX	Brazil	coffee (roasted ground)	Other
528	EX	Czech Republic	buckwheat (groat)	Cereals
531	CF	USA	strawberry (fruit)	Fruits
532	EX	Denmark	potato (tuber), barley (grain), wheat (grain), wheat (winter) (grain), faba bean (seed), faba bean (seeds)	Vegetables, Cereals, Oil seeds and pulses
533	CF	Spain	tomato (fruit)	Vegetables
536	CF	Denmark	beetroot (root), carrot (root), cucumber (fruit), potato (tuber)	Vegetables
537	EX	USA	rice (grain)	Cereals
541	EX	Poland	sweet marjoram (leaves)	Herbs and spices
542	EX	Poland	marjoram (leaves, dried), savory (leaves, dried), sweet basil (leaves, dried), thyme (leaves, dried)	Herbs and spices
543	EX	Poland	marjoram (leaves, dried), savory (leaves, dried), sweet basil (leaves, dried), thyme (leaves, dried)	Herbs and spices
544	EX	Poland	savory (leaves)	Herbs and spices
545	EX	Poland	thyme (leaves)	Herbs and spices
546	EX	Poland	basil (leaves)	Herbs and spices
548[c]	BS	EU countries (mostly Italy)	foods of a plant origin	Compound food
549	CF	Brazil	lettuce (leaves)	Vegetables
550	BS	USA	asparagus (stem), green beans (pod), pepper (red) (fruit), spinach (leaves)	Vegetables
571	CF	Greece	cabbage (leaves), celery (leaves), lettuce (leaves), spinach (leaves)	Vegetables
572	BS	Poland	beetroot (root), carrot (root), potato (tuber)	Vegetables
580	EX	Brazil	strawberry (fruit)	Fruits

ID, Paper unique identification number (see Table 2 for references); ST, Study type (CF – Comparison of Farms, BS – Basket Study, EX – Controlled Experiment); *Paper included in meta-analysis of frequency of detectable pesticide residues.

Table 3 cont. Study type, location and crop/product information of the comparison studies included in the meta-analysis.

ID	ST	Location	Crop/Product	Group
581	EX	India	wheat (grain)	Cereals
584	EX	Germany	tomato (fruit)	Vegetables
585	EX	Greece	tomato (fruit)	Vegetables
586	CF	Brazil	mango (fruit)	Fruits
587	EX	Hungary	wheat (grain)	Cereals
619*	BS	USA	apple (fruit), banana (fruit), muskmelon (fruit), grape (fruit), orange (fruit), peach (fruit), pear (fruit), strawberry (fruit), broccoli (flower), carrot (root), celery (root), cucumber (fruit), bean (raw), lettuce (leaves), potato (tuber), spinach (leaves), pepper (sweet) (fruit), sweet potato (tuber), tomato (fruit), squash (raw), foods of a plant origin, pepper (fruit)	Fruits, Vegetables, Compound food
620*	BS	Austria	foods of a plant origin	Compound food
621*	BS	Italy	tomato (fruit)	Vegetables
622*	BS	Denmark	foods of a plant origin	Compound food
623*	BS	Denmark	foods of a plant origin	Compound food
624*	BS	Austria	foods of a plant origin	Compound food

ID, Paper unique identification number (see Table 2 for references); ST, Study type (CF – Comparison of Farms, BS – Basket Study, EX – Controlled Experiment); *Paper included in meta-analysis of frequency of detectable pesticide residues.

Table 4. Information extracted from the papers and included in the database used for meta-analysis.

Information about the paper	Paper ID, authors, publication year, title, journal/publisher, type of paper (journal article, conference proceedings, conference paper, report, book, thesis), corresponding author, language of publication, information if paper was peer-reviewed, source of paper (electronic databases, contact with authors, reference list of reviews and original publications).
Study characteristics	Study type (Controlled Experiment - EX, Comparison of Farms - CF, Basket Study - BS), product, species, cultivar or variety, production system description, experimental year(s), location of the study.
Data	Name of the compositional parameter, number of samples, mean, SE or SD, measurement unit, data type (numeric, graphical).

Table 5. Summary of inclusion criteria used in the standard weighted (analysis 1) and the standard unweighted (analysis 5) meta-analysis, and the 6 sensitivity analyses carried out. Detailed results of sensitivity analysis are shown on the Newcastle University website (*http://research.ncl.ac.uk/nefg/QOF*)

Analysis No	**Data available**		**Cultivar or variety of the crop**		**Experimental years**	
	Only papers with N, mean, SD/SE	All papers reporting means	Cultivar/variety averaged*	Each cultivar/variety as separate data point†	One data point from one paper‡	Individual year as separate data point§
			Weighted meta-analysis			
1 standard‖	+		+		+	
2	+		+			+
3	+			+	+	
4	+			+		+
			Unweighted meta-analysis			
5 standard‖		+	+		+	
6		+	+			+
7		+		+	+	
8		+		+		+

*If data from more than one cultivar or variety of the crop were presented separately in the paper, average was calculated and included in the analysis; †If data from more than one cultivar or variety of the crop were presented separately in the paper, they were analysed separately, as individual data points; ‡If data from more than one experimental years were presented separately in the paper, average was calculated and included in the analysis; §If data from more than one experimental years were presented separately in the paper, they were analysed separately, as individual data points; ‖Results of the standard uwweighted and weighted meta-analysis are presented in the main paper.

Table 6. List of composition parameters included in the statistical analyses.*

Category	Parameters
Major components	Ash, Ash (total), Carbohydrates, Carbohydrates (total), Dry matter, Fat, Fat (crude), Fibre, Fibre (insoluble), Fibre (soluble), Fibre (total), Fructose, Glucose, Protein (total), Solids, Solids (soluble), Solids (total), Starch, Sucrose, Sugars (reducing), Water
Amino acids	Amino acids, Amino acids (total), Alanine (Ala), Arginine (Arg), Asparagine (Asn), Aspartic acid (Asp), Glutamic acid (Glu), Glutamine (Gln), Glycine (Gly), Histidine (His), Isoleucine (Ile), Leucine (Leu), Lysine (Lys), Methionine (Met), Phenylalanine (Phe), Proline (Pro), Serine (Ser), Threonine (Thr), Tyrosine (Tyr), Valine (Val)
Fatty acids	16.0 fatty acid (palmitic acid), 18.0 fatty acid (stearic acid), 18.1 fatty acid (oleic acid), 18.2 fatty acid (linoleic acid), 18.3 fatty acid (linolenic acid), 20.0 fatty acid (arachidic acid), Monounsaturated fatty acids, Polyunsaturated fatty acids, Saturated fatty acids, Saturated fatty acids (total)
Vitamins and antioxidants	Alpha-carotene, Alpha-tocopherol, Anthocyanins, Antioxidant activity based on 2,2-diphenyl-1-picrylhydrazyl (DPPH), Ferric reducing antioxidant power (FRAP), Trolox equivalent antioxidant capacity (TEAC), Oxygen radical antioxidant capacity (ORAC), Apigenin, Ascorbic acid, Beta-carotene, Beta-cryptoxanthin, Carotenes, Carotenoids, Carotenoids (total), Dehydroascorbic acid, Flavanols, Flavanones, Flavones, Flavones and flavonols, Flavones and flavonols (total), Flavonoids (total), Flavonols, Flavonols (total), Gamma-tocopherol, Kaempferol, Kaempferol 3-O-glucoside, Lutein, Luteolin, Luteolin-7-o-glucoside, Lycopene, Myricetin, Myricetin 3-o-glucoside, Polyphenoloxidase (PPO) activity (towards caffeic acid), Polyphenoloxidase (PPO) activity (towards chlorogenic acid), Quercetin, Quercetin 3-galactoside, Quercetin 3-glucoside, Quercetin 3-rhamnoside, Quercetin malonylglucoside, Quercetin-3-rutinoside (Rutin), Vitamin B, Vitamin B_1, Vitamin C, Vitamin C (total), Vitamin E, Zeaxanthin
Minerals and undesirable metals	Aluminium (Al), Arsenic (As), Barium (Ba), Boron (B), Bromine (Br), Cadmium (Cd), Calcium (Ca), Carbon (C), Cerium (Ce), Chloride (Cl), Chromium (Cr), Cobalt (Co), Copper (Cu), Elements, Gallium (Ga), Indium (In), Iron (Fe), Lanthanum (La), Lead (Pb), Magnesium (Mg), Manganese (Mn), Molybdenum (Mo), Nickel (Ni), Nitrogen (N), Phosphorus (P), Potassium (K), Rhenium (Re), Rubidium (Rb), Selenium (Se), Sodium (Na), Strontium (Sr), Sulphur (S), Thallium (Tl), Tin (Sn), Vanadium (V), Wolfram (W), Zinc (Zn)
Phenolic compounds	5-o-Caffeoylquinic acid (5-CQA), Caffeic acid, Chlorogenic acid, Ellagic acid, Ferulic acid, Gallic acid, Hydroxycinnamic acids (total), p-coumaric acid (pCA), Phenolic acids, Phenolic acids (total), Phenolic compounds, Phenolic compounds (total), Salicylic acid, Sinapic acid (SA)
Volatile compounds	Volatile compounds
Other	Acidity, Acidity (total), Acidity (volatile), Acids (total), Anthocyanins (total), Catechin, Chalcones, Citric acid, Dihydrochalcones, Energy, Epicatechin, Flavanols (total), Glucoraphanin, Glucosinolates, Malic acid, Naringenin, Naringenin (R-enantomer), Nitrates, Nitrites, Organic acids, Other defense compounds ,Other non-defense compounds, Other non-defense compounds (total), pH, Phloretin, Procyanidins, Resveratrol, Stilbenes, Titratable acidity, Xanthophylls

*Compounds for which number of comparisons organic vs. conventional was ≥ 3.

Table 7. List of composition parameters excluded from the statistical analyses.*

Category	Parameters
Major components	Albumin, Amirose, Amylose, Ash (crude), Ash at 700°C, Brix degree, Essential oil, Fibre (crude), Galactose, Glutelin, Gluten, Gluten (dry), Gluten (wet), Glycerides (total), Maltose, Non-starch polysaccharides (soluble), Non-starch polysaccharides (total), Protein, Protein (soluble), Protein (true), Stachyose, Starch Index, Sugars (non-reducing), Sugars (soluble)
Amino acids	Amino acids (essential), Amino acids (free), Alanine (% of total EAA), Alanine (hydrolised), Alpha-aminobutyric acid, Arginine (% of total EAA), Arginine (hydrolised), Aspartic acid (% of total EAA), Aspartic acid (hydrolised), Beta-alanine, Cysteine (Cys), Cystine, Cystine (% of total EAA), Essential amino acids (total), Glutamic acid (% of total EAA), Glutamic acid (hydrolised), Glutamine (hydrolised), Glycine (% of total EAA), Histidine (% of total EAA), Histidine (hydrolised), Isoleucine (% of total EAA), Isoleucine (hydrolised), Leucine (% of total EAA), Leucine (hydrolised), Lysine (% of total EAA), Lysine (hydrolised), Methionine (% of total EAA), Methionine (hydrolised), Methionine + Cystine, Phenylalanine (% of total EAA), Phenylalanine (hydrolised), Proline (% of total EAA), Proline (hydrolised), Serine (% of total EAA), Serine (hydrolised), Threonine (% of total EAA), Threonine (hydrolised), Tryptophane (Trp), Tyrosine (% of total EAA), Tyrosine (hydrolised), Valine (% of total EAA), Valine (hydrolised)
Fatty acids	12.0 fatty acid, 14.0 fatty acid, 14.1 fatty acid, 16.1 c9 fatty acid, 16.1 fatty acid (palmitoleic acid), 16.1 n-7 fatty acid, 17.0 fatty acid, 17.1 fatty acid, 18.1 cis fatty acid, 18.1 n-9 fatty acid, 18.2 n-6 fatty acid, 18:3 n-3 fatty acid (alpha-linolenic acid), 20.1 fatty acid, 20.1 n-9 fatty acid, 20.2 fatty acid, 20.3 (n-3) fatty acid, 20.3 (n-6) fatty acid, 20.4 fatty acid, 22.0 fatty acid, 22.1 fatty acid, 22.6 fatty acid, 24.0 fatty acid, 24.1 fatty acid, Fatty acids, Fatty acids (free), Fatty acids (total), Monounsaturated fatty acids (MUFA), Monounsaturated fatty acids (total), n-3 - n-6 fatty acids ratio, n-3 fatty acids, n-6 fatty acids, Polyunsaturated fatty acids (PUFA), Polyunsaturated fatty acids (total), Saturated fatty acids (SFA)
Vitamins and antioxidants	13-cis-lycopene, 13-cis-β-carotene, 15-cis-lycopene, 5-formyltetrahydrofolate (5-formylTHF), 5-methyltetrahydrofolate (5-methylTHF), 9-cis-lycopene, 9-cis-violaxanthin, All-trans- + 5-cis-lycopene, All-trans-β-carotene, Alpha-tocotrienol, Antheraxanthin, Antioxidant activity (Catalase-like activity), Antioxidant activity (hydrophilic) (ORAC),Antioxidant activity (hydrophilic) (TEAC), Antioxidant activity (IC50), Antioxidant activity (lipophilic) (ORAC), Antioxidant activity (microchemiluminescence), Antioxidant activity (Randox), Antioxidant activity (scavenging effect for DPPH radical of tea extract) (concentration 100μg per ml), Antioxidant activity (scavenging effect for DPPH radical of tea extract) (concentration 1mg per ml), Antioxidant activity (scavenging effect for DPPH radical of tea extract) (concentration 200μg per ml), Antioxidant activity (scavenging effect for DPPH radical of tea extract) (concentration 300μg per ml), Antioxidant activity (scavenging effect for DPPH radical of tea extract) (concentration 50μg per ml), Antioxidant activity (Sod-like activity), Antioxidant activity (water insoluble) (TEAC), Antioxidant activity (water soluble) (TEAC), Antioxidant capacity (superoxide scavenging), Antioxidant effect of 10ug per ml extract, Antioxidant effect of 1ug per ml extract, Antioxidant effect of 5ug per ml extract, Apigenin 6-C-Galactoside, 8-C-Glucoside, Apigenin glucuronide, Ascorbate peroxidase (AsA-POD) activity, Baicalein, Beta-tocopherol, Beta-tocotrienol, Capsanthin, Capsanthin 5,6-epoxide, Capsanthin diester, Capsorubin, Carotene, Catalase-like activity (CAT), Cis-antheraxanthin, Cis-capsanthin, Cucurbitaxanthin A, Dehydroascorbate reductase (DHAR) activity, Delta-tocopherol, Fisetin aglycones, Fisetin glycosides, Flavonoids (non-anthocyan), Flavonoids (other), Flavonoids (sum), Flavonols (total) and xanthone glycosides, Folate, Glutathione peroxidase (GSH-POD) activity, Glutathione reductase (GR) activity, Guaiacol peroxidase (G-POD) activity, Isomangiferin, Isoorientin, Isoorientin 2'-O-Rhamnoside, Isoorientin 6'-O-Xyloside, Isorhamnetin, Isorhamnetin rutinoside, Isorhamnetin-3,4'-diglycoside (I-3,4'-digly), Isorhamnetin-4'-glycoside (I-4'-gly), Isoscoparin (3´-methylluteolin 6-C-glucoside), Isovitexin, Kaempferol + Kaempferol glycoside, Kaempferol 3-O-(caffeoyl)sophoroside-7-O-glucoside, Kaempferol 3-O-(feruloyl)sophoroside + kaempferol 3-O-sophoroside, Kaempferol 3-O-(feruloyl)sophoroside-7-O-glucoside, Kaempferol 3-O-(feruloyl)sophorotrioside, Kaempferol 3-O-(feruloyl)sophorotrioside + kaempferol 3-O-(feruloyl)sophoroside, Kaempferol 3-O-(feruloyl-caffeoyl)sophoroside-7-O-glucoside, Kaempferol 3-O-(methoxycaffeoyl-caffeoyl)sophoroside-7-O-glucoside, Kaempferol 3-O-(sinapoyl)sophoroside, Kaempferol 3-O-(sinapoyl)sophoroside-7-O-glucoside, Kaempferol 3-O-(sinapoyl-caffeoyl)sophoroside-7-O-glucoside, Kaempferol 3-O-sophoroside

*Compounds for which number of comparisons organic vs. conventional was < 3.

Table 7 cont. List of composition parameters excluded from the statistical analyses.*

Category	Parameters
Vitamins and antioxidants cont.	Kaempferol 3-O-sophoroside-7-O-glucoside, Kaempferol 3-O-sophoroside-7-O-sophoroside, Kaempferol 3-O-sophoroside-7-O-sophoroside + kaempferol 3-O-tetraglucoside-7-O-sophoroside, Kaempferol 3-O-sophorotrioside, Kaempferol 3-O-sophorotrioside + kaempferol 3-O-(sinapoyl)sophoroside, Kaempferol 3-O-sophorotrioside-7-O-glucoside, Kaempferol 3-O-sophorotrioside-7-O-glucoside + kaempferol 3-O-(methoxycaffeoyl-caffeoyl)sophoroside-7-O-glucoside, Kaempferol 3-O-sophorotrioside-7-O-sophoroside, Kaempferol aglycones, Kaempferol glucoside, Kaempferol glucuronide, Kaempferol glycoside, Kaempferol malonylglucoside, Kaempferol rutinoside, L-ascorbic acid, Lutein + violaxanthin, Luteolin 6-C-Galactoside, 8-C-Glucoside and Lucenin-2 (Luteolin 6, 8 Di-C-Glucoside), Luteolin gucuronide, Luteolin-7-(2-apiosyl-4-glucosyl-6-acetyl)glucoside, Luteolin-7-(2-apiosyl-6-acetyl)glucoside, Luteoxanthin b, Luteoxanthin-like, Mangiferin, Methylquercetin glucoside, Monodehydroascorbate reductase (MDAR) activity, Morin, Mutatoxanthin, Mutatoxanthin-like, Myricetin 3-arabinoside, Myricetin aglycones, Myricetin glycosides, Myricetin malonylglucoside, Myricetin rutinoside, Neoxanthin, Peroxidase activity, Peroxide, Peroxide index, Peroxide number, Phytoene, Phytofluene, Polyphenoloxidase (PPO) activity (towards catechol), Polyphenoloxidase activity, Quercetin + quercetin glycoside ,Quercetin 3-arabinofuranoside, Quercetin 3-arabinoside, Quercetin 3-o-glucoside + quercetin 3-O-rutinoside, Quercetin 3-xyloside, Quercetin 4'-monoglucoside, Quercetin aglycones, Quercetin glycosides, Quercetin glycosides, Quercetin glycosides (other), Quercetin rutinoside, Quercetin-3,4'-diglucoside (Q-3,4'-diglu), Quercetin-3,7,4'-triglycoside (Q-3,7,4'-trigly), Quercetin-3-glucoside (Q-3-glu), Quercetin-3-o-glucuronide, Quercetin-4'-glucoside (Q-4'-glu), Riboflavin, SDS (1-sodium dodecyl sulfate) activation (-fold) of polyphenol oxidase using 4-methyl catechol, SDS (1-sodium dodecyl sulfate) activation (-fold) of polyphenol oxidase using 4-tert-butyl catechol, SDS (1-sodium dodecyl sulfate) activation (-fold) of polyphenol oxidase using chlorogenic acid, Superoxide dismutase (SOD) activity, Tocopherolquinone (TQ), Tocopherols (total), Total phenol index (TPI), Tricin, Trypsin-mediated activation of polyphenol oxidase ,Violaxanthin, Vitamin A, Vitamin B_2, Vitamin B_6, Vitamin E (total), Vitamin K_1, Zeinoxanthin
Minerals and undesirable metals	Antimony (Sb), Beryllium (Be), Bismuth (Bi), Calcium (Ca) (HCl extractable), Cesium (Cs), Dysprosium (Dy), Europium (Eu), Gadolinium (Gd), Gold (Au), Hafnium (Hf), Holmium (Ho), Iodine (I), Magnesium (Mg) (HCl extractable), Mercury (Hg), Mineral compounds, Neodymium (Nd), NH4-Nitrogen, Niobium (Nb), Nitrogen (assimilable), Phosphorus (P) (HCl extractable), Platinum (Pt), Praseodymium (Pr), Samarium (Sm), Scandium (Sc), Silver (Ag), Tellurium (Te), Terbium (Tb), Thorium (Th), Thulium (Tm), Titanium (Ti), Uranium (U), Ytterbium (Yb), Yttrium (Y), Zirconium (Zr)
Phenolic compounds	1,2'-disinapoyl-2-feruloylgentiobiose, 1,2-disinapoylgentiobiose + 1-sinapoyl-2-feruloylgentiobiose + isomer of 1,2-disinapoylgentiobiose + 1,2,2'-trisinapoylgentiobiose, 3-acetyl-5-caffeoylquinic acid, 3-caffeoylquinic acid derivate, 3-p-coumaroylquinic acid, 4-o-Caffeoylquinic acid (4-CQA), 4-p-coumaroylquinic acid, Caffeic acid derivatives (total), Caffeoyl derivatives, Caffeoylglucose, Caffeoyltartaric acid, Chicoric acid, Cinnamic acid, Coumaric acid, Coumaric acid glucoside, Coumarins, Dicaffeoyltartaric acid, Ellagic acid + ellagic acid glycoside, Ellagic acid aglycones, Ellagic acid glucoside, Ellagic acid glycoside, Ferulic acid (bound), Ferulic acid (conjugated), Ferulic acid glucoside, Feruoyglucose, Hydroxycinnamates, Hydroxycinnamic acid derivate a, Hydroxycinnamic acid derivate b, Hydroxycinnamic acid derivative (unidentified), Hydroxycinnamic acid derivatives (total), N-(3,4-dihydroxy)-E-cinnamoyl-5-hydroxyanthranilic acid, N-(4-hydroxy)-E-cinnamoyl-5-hydroxyanthranilic acid, N-(4-hydroxy-3-methoxy)-E-cinnamoyl-5-hydroxyanthranilic acid, Neo-chlorogenic acid, p-coumaric acid derivate, p-coumaroylglucose, p-coumaroylquinic acid, Phenolics (bound) (total), Phenolics (free) (total), Phenolics (soluble conjugulated) (total), p-hydroxybenzoic acid (pHBA), Polyphenols hydrolyzable (total), Protocatecuic acid, Sinapic acid glucose derivate, Syringic acid, Trans-caffeoyltartaric acid, Trans-p-coumaric acid, Trans-p-cumaroyltartaric acid, Vanillic acid (VA)
Volatile compounds	(E)-2-decen-1-ol, (E)-2-hepten-1-ol, (E)-2-hexenal, (E)-2-nonen-1-ol, (E)-2-octenal, (E)-3-hepten-1-ol, (E)oak lactone, (E,E)-2,4-hexadienal, (Z)-3-hexen-1-ol, (Z)-3-hexenal, (Z)-6-nonenal, (Z)oak lactone, 1,1-diethoxyethane, 1,8-cineole, 1-butanol, 1-hexanol, 1-hexen-3-ol, 1-isothiocyanato-butane, 1-nonanol, 1-octanol ,1-octen-3-ol, 1-pentanol, 1-penten-3-ol, 1-propanol, 2,6,6-trimethyl-1-cyclohexene-1-carboxaldehyde, 2-butanol, 2-butanone, 2-decanone, 2-hexen-1-ol (cis), 2-hexen-1-ol (trans), 2-hexenal

*Compounds for which number of comparisons organic vs. conventional was < 3.

Table 7 cont. List of composition parameters excluded from the statistical analyses.*

Category	Parameters
Volatile compounds cont.	2-hexenal (cis), 2-hexenal (trans), 2-hexyn-1-ol, 2-Isothiocyanatoethyl-benzene, 2-methyl-3-pentanone, 2-methyl-butanoic acid methyl ester, 2-nonanone, 2-pentenal, 2-undecanone, 3,7-dimethyl-1,6-octadien-3-ol (linalool), 3-carene, 3-ethoxy-1-propanol, 3-hexen-1-ol (cis), ,3-methyl-1-pentanol, 3-methyl-2-butanone, 3-pentanone-1-(methylthio), 4,5-dimethyl-thiazole, 4-ethyl-5-methylthiazole, 4-ethylguaiacol, 4-ethylphenol, 4-hexen-1-ol, 4-isothiocyanato-1-butene, 4-methyl-1-pentanol, 4-methyl-1-undecene, 4-methylpentyl isothiocyanate, 5-methylfurfural, 6,10-dimethyl-5,9-undecadien-2-one (geranylacetone), Acetaldehyde, Acetaldehyde and derivatives, Acetic acid octyl ester, Acetoin , Allyl isothiocyanate, Alpha-humulene, Alpha-phellandrene, Alpha-pinene, Alpha-terpinene, Benzaldehyde, Benzene propanenitrile, Benzeneacetaldehyde, Benzyl alcohol, Benzyl nitrile, Beta-caryophyllene, Beta-muurolene, Beta-myrcene, (E)-2-decen-1-ol, (E)-2-hepten-1-ol, (E)-2-hexenal, (E)-2-nonen-1-ol, (E)-2-octenal, (E)-3-hepten-1-ol, (E)oak lactone, (E,E)-2,4-hexadienal, (Z)-3-hexen-1-ol, (Z)-3-hexenal, (Z)-6-nonenal, (Z)oak lactone, 1,1-diethoxyethane, 1,8-cineole, 1-butanol, 1-hexanol, 1-hexen-3-ol, 1-isothiocyanato-butane, 1-nonanol, 1-octanol ,1-octen-3-ol, 1-pentanol, 1-penten-3-ol, 1-propanol, 2,6,6-trimethyl-1-cyclohexene-1-carboxaldehyde, 2-butanol, 2-butanone, 2-decanone, 2-hexen-1-ol (cis), 2-hexen-1-ol (trans), 2-hexenal, 2-hexenal (cis), 2-hexenal (trans), 2-hexyn-1-ol, 2-Isothiocyanatoethyl-benzene, 2-methyl-3-pentanone, 2-methyl-butanoic acid methyl ester, 2-nonanone, 2-pentenal, 2-undecanone, 3,7-dimethyl-1,6-octadien-3-ol (linalool), 3-carene, 3-ethoxy-1-propanol, 3-hexen-1-ol (cis), ,3-methyl-1-pentanol, 3-methyl-2-butanone, 3-pentanone-1-(methylthio), 4,5-dimethyl-thiazole, 4-ethyl-5-methylthiazole, 4-ethylguaiacol, 4-ethylphenol, 4-hexen-1-ol, 4-isothiocyanato-1-butene, 4-methyl-1-pentanol, 4-methyl-1-undecene, 4-methylpentyl isothiocyanate, 5-methylfurfural, 6,10-dimethyl-5,9-undecadien-2-one (geranylacetone), Acetaldehyde, Acetaldehyde and derivatives, Acetic acid octyl ester, Acetoin , Allyl isothiocyanate, Alpha-humulene, Alpha-phellandrene, Alpha-pinene, Alpha-terpinene, Benzaldehyde, Benzene propanenitrile, Benzeneacetaldehyde, Benzyl alcohol, Benzyl nitrile, Beta-caryophyllene, Beta-muurolene, Beta-myrcene, Beta-pinene, Bornyl acetate, Butanenitrile-4-(methylthio), Butanoic acid, Butanoic acid methyl ester, Butyl lactate, Butyl-4-(methylthio) isothiocyanate, Butylated hydroxytoluene, Cadina-3,9-dien, Camphene, Camphor, Cedrol, Decanal, Decanoic acid, Diethyl disulfide, Diethyl malate, Diethyl succinate, Dimethyl disulfide, Dimethyl pentasulfide, Dimethyl tetrasulfide, Dimethyl trisulfide, D-Limonene, Dodecanal, Esters (total), Ethanol, Ethyl 2-furoate, Ethyl 3-hydroxybutanoate, Ethyl acetate, Ethyl butanoate, Ethyl decanoate, Ethyl hexanoate, Ethyl lactate, Ethyl octanoate, Ethyl propanoate, Eugenol, Farnesol, Furfural (FUR), Furfuryl alcohol, Gamma-butyrolactone, Gamma-decalactone, Gamma-terpinene, Heptanal, Hexanal, Hexanoic acid, Isoamyl acetate, Isoamyl alcohols, Isobornyl acetate, Isobutanoic acid, Isobutanol, Isobutyl lactate, Isopinocarveol, Isothiocyanates (total), Isothiocyanato-cyclohexane, Lactones (total), Lauric acidLilial, Linalool, Menthol, Methanol, Methionol, Methyl chavicol, Methyl cinnamate, Methyl propionate, Methyl-(methylthio)-methyl disulfide, Monoethyl succinate, Myrcene, Nitriles (total), Octanal, Octanoic acid, Pantolactone, p-cymene, Pentanenitrile-5-(methylthio), Phenethyl acetate, Phenethyl alcohol, Phenethyl octanoate, Propanal-3-(methylthio), Propyl acetate, Propyl-3-(methylthio) isothiocyanate, Sabinene, Sulfides (total), Terpinen-4-acetat, Thiols, Valencene, Vanillin, Volatile compounds (total), Volatile phenols (total)
Other	(+)catechin, (2R)eriocitrin, (2R)hesperidin, (2R)naringin, (2S)eriocitrin, (2S)hesperidin, (2S)naringin, 1,2-diacylglycerides, 1,3-diacylglycerides, 1-kestose, 2,4-dihydroxy-7-methoxy-1,4-benzoxazin-3-one (DIMBOA) glucoside ,2-aminoadipate, 3´-C-glucoside, 2´,4´,6´,3,4-pentahydroxychalcone, 4-dihydroxy-7-methoxy-1,4-benzoxazin-3-one (DIMBOA), 4-hydroxyglucobrassicin, 4-methoxyglucobrassicin, 6',7'-dihydroxybergamottin, 6',7'-dihydroxybergamottin dimer 708, 6',7'-dihydroxybergamottin dimer 728, Acidity (free), Aconitic acid, Acylated derivatives of anthocyanins, Agmantin, Alcohols (total), Aldehydes (total), Aldehydic form of ligstroside aglycone, Aldehydic form of oleuropein aglycone, Alkaloids, Alliin (S-(2-propenyl)-L-cysteine sulfoxide; ACSO), Alpha-acids, Alpha-chaconine, Alpha-solanine, Angelicin (furanocoumarins), Arabinoxylans (soluble), Arabinoxylans (total), Arachidolylphosphatidylcholine, Aureusidin glucoside, Benzoxazinoids, Bergamottin, Bergapten (furanocoumarins), Bergaptol, Beta-acids,

*Compounds for which number of comparisons organic vs. conventional was < 3.

Table 7 cont. List of composition parameters excluded from the statistical analyses.*

Category	Parameters
Other cont.	Beta-glucan, Beta-sitosterol, Biothiols, Caffeine, Campestanol, Campesterol, Captopril (CAP), Catechins (total), Celulose, Cerebrosides, Chlorophyll (total), Chlorophyll a, Chlorophyll b, Cholesterol, Cl- ion, Clerosterol, Cyanidin, Cyanidin 3-galactoside, Cyanidin 3-glucoside, Cyanidin 3-glucoside-succinate, Cyanidin 3-o-rutinoside, Cyanidin-glycosides (other), Delphinidin, Delphinidin 3-arabinoside, Delphinidin 3-galactoside, Delphinidin 3-glucoside, Delphinidin 3-o-glucoside, Delphinidin 3-o-rutinoside, Delta-5,24-stigmastadienol ,Delta-5-avenasterol,Delta-7-avenasterol, Delta-7-stigmastenol, Desmethylxanthohumol (DMX), Dialdehydic form of oleuropein aglycone, Dimer catechin, Energy (gross), Energy (metabolizable), Epicatechin gallate, Epigallocatechin gallate,Epiprogoitrin, Eriocitrin (total), Eriodictyol (total), Falcarindiol (FaDOH), Falcarindiol-3-acetate (FaDOAc), Falcarinol (FaOH), Fumaric acid, Furanocoumarins (total), Galacturonic acid, Gallocatechin gallate, Gamma-aminobutyric acid (GABA), Gamma-glutamyl cysteine (GGC), Gangliosides, Globulin, Glucoalyssin, Glucobrassicanapin, Glucobrassicin, Glucoerucin, Glucoiberin, Gluconapin, Glucosinolates (Aliphatic), Glucosinolates (Indole), Glucosinolates (total), Glutathione (GSH), Glycoalkaloids, Glycoalkaloids (total), Hemicelulose, Hesperetin, Hesperidin, Hesperidin glycosides, Hop acids, Hydroxymethylfurfural (HMF), Hydroxytyrosol, Hyperoside, Inositol, Internal Ethylene Concentration (IEC), Isoalliin (trans-(+)-S-(1-propenyl)-L-cysteine sulfoxide; PESCO), Isobergapten (furanocoumarins), Isopimpinellin (furanocoumarins), K-pentaose, K-tetraose, L-homoserine, Lignin (acid detergent lignin, ADL), Lysophosphatidylinositol, Malvidin, Malvidin 3-arabinoside, Malvidin 3-galactoside, Malvidin 3-glucoside, Malvidin 3-o-glucoside, Malvidin 3-p-cumaroul-glucoside, Methiin ((+)-S-methyl-L-cysteine sulfoxide; MCSO), N-acetylcysteine (NAC), Naringenin (S-enantomer), Naringenin + naringin (R-enantomer), Naringenin + naringin (S-enantomer) ,Naringin, Naringin (R-enantomer), Naringin (S-enantomer), Narirutin, N-caffeoylputrescine, Neoglucobrassicin, o-Diphenols, Organic acids (total), Other defense compounds (total), Oxalate, Oxalic acid, Pectin, Pelargonidin 3-glucosidesuccinate, Pelargonidin-3-glucoside, Peonidin, Peonidin 3-glucoside, Peonidin 3-o-glucoside, Peonidin-3-galactoside, Petunidin 3-arabinoside, Petunidin 3-galactoside, Petunidin 3-glucoside, Phloretin + phloretin glycoside, Phloretin 2'-xyloglucose, Phloretin 2-xylosylglucoside, Phloridzin, Phloridzin glycosides, Phosphates (PO4 3- ion), Phosphatidylethanolamine, Phosphatidylinositol, Phosphoric acid, Phytate-phosphorus, Phytic acid, Phytoalexins activity, Pinoresinol, Polyacetylenes, Procyanidin B1, Procyanidin B2, Procyanidin B2S, Procyanidin B3, Procyanidin B4, Procyanidin Bx, Procyanidin trimer, Procyanidins (other), Procyanidins (total), Progoitrin, Prolamin, Propiin ((+)-S-propyl-L-cysteine sulfoxide; PCSO), Psoralen (furanocoumarins), Putrescine, Pyruvic acid, Quinic acid, R(+)-eriodictyol, R(+)-hesperetin, Raffinose, R-naringenin aglycones, R-naringenin glycosides, S(-)-eriodictyol, S(-)-hesperetin, S(-)-naringenin, S-Alk(en)ylcysteine sulfoxides (ACSOs) (total), Shikimic acid, Sinigrin, S-naringenin aglycones, S-naringenin glycosides, SO2, SO4 2- ion, Solanidine, Sorbitol, Spermidine, Spermine, Sphondin, Sterol lipids, Sterols, Sterols (total), Sterols and stanols, Stigmasterol, Sulfides (total), Sulforaphane (SF), Sulphate, Synephrine, Taxifolin aglycones, Taxifolin glycosides, Trans-Resveratrol, Trans-resveratrol-3-o-β-glucoside, Triacylglycerides, Trigonelline, Truxinic acid sucrose ester (TASE), Tyrosol, Xanthohumol (X), Xanthotoxin (furanocoumarins), Xylose

*Compounds for which number of comparisons organic vs. conventional was < 3.

2. ADDITIONAL METHODS DESCRIPTION, RESULTS AND DISCUSSION

METHODS

Calculations used for weighted meta-analyses

The SMD from a single study was calculated using standard formulas within "metafor" as follows:

$$SMD = \frac{\bar{X}_O - \bar{X}_C}{S_{within}} \times J$$

where $X□_O$ is the mean value for experimental group (organic), $X□_C$ is the mean value for control group (conventional), S_{within} is the pooled standard deviation of the two groups, and J is a factor used to correct for small sample size. J is calculated as:

$$J = 1 - \frac{3}{4 \times (n_C + n_O - 2) - 1}$$

where n_O and n_C are organic and conventional sample sizes.

S_{within} is calculated as:

$$S_{within} = \sqrt{\frac{(n_O - 1)S_O^2 + (n_C - 1)S_C^2}{n_O + n_C - 2}}$$

where S_O and S_C are the standard deviations in individual systems (organic and conventional) respectively.

The pooled SMD (SMD_{tot}) across all studies was calculated as:

$$SMD_{tot} = \frac{\sum_{i=1}^{n}(\frac{1}{v_i} \times SMD_i)}{\sum_{i=1}^{n}(\frac{1}{v_i})}$$

Where v_i is a sampling variance estimated as:

$$v_i = \frac{n_C + n_O}{n_C \times n_O} + \frac{SMD^2}{2 \times (n_C + n_O)}$$

The pooled or summary effect (SMD_{tot}) was calculated for all nutrient- and composition-related parameters reported in a minimum of 3 studies, following procedures advocated by Lipsey and Wilson (see references in the main manuscript).

Calculations used percentage mean differences (MPDs)

For each data-pair ($X□_O$, $X□_C$) extracted from the literature and used in the standard unweighted meta-analysis the percentage difference was calculated as:

$+[(\bar{X}_O \times 100/\bar{X}_C) - 100]$ for data sets where $X□_O > X□_C$, or

$-[(\bar{X}_C \times 100/\bar{X}_O) - 100]$ for data sets where $X□_C > X□_O$

Calculations used for Odds ratios

Odds ratios (OR) were calculated as:

$$ln\ (odds\ ratio) = ln\left(\frac{a_i \times d_i}{b_i \times c_i}\right)$$

where a_i is a number of positive samples in organic crops, b_i is a number of negative samples in organic crops, c_i is a number of positive samples in conventional crops, and d_i is a number of negative samples in conventional crops.

RESULTS

Supplementary Table 8 shows the basic information/statistics on the publications/data used for meta-analyses of composition parameters included in Fig. 3 and 4 in the main paper.

Supplementary Table 9 and 10 shows the mean percentage differences (MPD) and standard errors (SE) calculated using the data included in for standard unweighted and weighted meta-analyses of composition parameters shown in Fig. 3 and 4 of the main paper (MPDs are also shown as symbols in Fig. 3 and 4).

Supplementary Table 11 shows the meta-analysis results for addition composition parameters (volatiles, solids, titratable acidity, and the minerals Cr, Ga, Mg, Mn, Mo, Rb, Sr, Zn) for which significant differences were detected by the standard weighted and unweighted meta-analysis protocols. These were not included in the main paper, because there is very limited information on potential health impacts for these compounds from the relative changes in composition detected in this study.

Supplementary Figures 3 to 4 show the forest plot and the results of the standard unweighted and weighted meta-analysis mixed-effect model with study type as moderator, for data from studies which compared the composition of organic and conventional crops and crop based foods.

Supplementary Figures 5 to 40 show the forest plots comparing SMDs from standard weighted meta-analysis mixed-effect model for different products, for composition parameters for which significant difference between organic and conventional crops and crop based foods were found.

Supplementary Figures 41 shows results of the standard weighted meta-analysis mixed-effect model with publication as moderator, for data from studies which compared the frequency of occurance of pesticides in organic and conventional crops.

Supplementary Table 12 shows the results of the standard unweighted and weighted meta-analysis for parameters where none of the 8 meta-analysis protocols indentified significant effects.

Supplementary Table 13 shows the results of the statistical test for publication biasreported in Fig. 3 of the main paper.

DISCUSSION

Mineral composition

Results from the meta-analysis indicate that a switch from organic to conventional crop production has a very limited effect on mineral composition, especially with respect to minerals such as calcium (Ca), copper (Cu), magnesium (Mg), iron (Fe), selenium (Se), iodine (I) and zinc (Zn) for which insufficient intakes and deficiencies are thought to be relatively common and dietary supplementation or biofortification of crops has been recommended[1,2]. For Ca, Cu, Fe no significant differences between organic and conventional crops were detected by meta-analyses (see Table 12), for Se only one of the sensitivity analyses detected significant difference, and for I there were insufficient data to carry out meta-analyses (Table 7).

For Zn and Mg unweighted meta-analysis detected slightly (<5%), but significantly higher concentrations in organic crops. Since dietary intakes of Mg and Zn are often lower than recommended and Zinc deficiency is a serious problem worldwide[3,4] the observed increase in Zn and Mg concentrations is in principle desirable. However, such a small difference is unlikely to have a "significant" nutritional or health impact, particularly since the main sources of Mg and Zn in Western diets are of animal origin.

Chromium (Cr) has been recognised as a critical co-factor in the action of insulin and an essential mineral nutrient[5,6]. Chromium supplementation was shown to attenuate symptoms and reduce insulin requirements for patients with diabetes[7]. A reduction in chromium intake associated with the consumption of organic foods would therefore be undesirable for diabetics, but can be compensated by chromium supplementation. There is no evidence that the reduction in Cr intake with organic crops could affect non-diabetics, since chromium supplementation has not been linked to health benefits in non-diabetics[7]. The naturally occurring trivalent chromium compounds are considered essential nutrients and at typical dietary intake values (50 to 200µg day^{-1}) they are not considered to cause toxicity problem[8]. However, dietary intake and environmental exposure to hexavalent chromium compounds was linked to mutagenic, carcinogenic and toxic effects in both animals and human (e.g. workers in industries such as chromate pigment production and use, chromium plating, stainless steel welding, ferrochromium alloy production and leather tanning)[6,9].

There is limited information on the potential health impacts of the other minerals (Ga, Mn, Mo, Rb, and Sr) for which significant composition differences were detected (Table 11). However, there is one report linking increased dietary Mo intakes to reduced reproductive health (lower sperm counts) in animals and humans[10]. Also oral administration of 2 g day^{-1} of strontium raneate was shown to reduce vertebral fractures in women with osteoporosis[11]. However, the evidence base is currently limited and it is impossible to extrapolate from these studies whether the differences in Mo and Sr intakes associated with a switch from conventional to organic crop consumption will result in significant health impacts.

Additional references

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Table 8. Basic information/statistics on the publications/data used for meta-analyses of composition parameters included in Fig. 3 and 4 in the main paper.

Parameter	Studies	*n*	No of ORG	No of CONV	Number of comparisons reporting that concentrations were: Numerically higher in		Identical	Significantly higher in		Not significantly different‡
					ORG	CONV		ORG*	CONV†	
Antioxidant activity	69	160	1163	1155	117	41	2	21	6	25
FRAP	9	14	108	108	11	3	0	1	0	7
ORAC	8	8	43	43	7	1	0	1	0	0
TEAC	18	22	402	406	19	3	0	3	0	3
Phenolic compounds	86	129	959	985	88	39	2	17	4	40
Flavonoids (total)	13	20	115	113	11	9	0	5	5	3
Phenolic acids (total)	7	9	176	176	7	1	1	1	0	0
Phenolic acids§	52	154	1833	2000	95	57	2	11	9	6
Chlorogenic acid	21	24	245	256	15	9	0	4	2	0
Flavanones	12	76	581	581	48	28	0	24	14	11
Stilbenes	7	8	44	38	8	0	0	0	0	3
Flavones and flavonols§	46	196	1562	1993	119	71	6	21	3	38
Flavones§	9	27	249	249	16	10	1	0	0	10
Flavonols§	44	169	1310	1744	103	61	5	21	3	28
Quercetin	20	23	172	172	15	7	1	3	2	6
Rutin	10	12	150	161	8	3	1	2	0	2
Kaempferol	11	14	147	147	11	2	1	5	0	3
Anthocyanins (total)	18	20	131	115	17	3	0	3	0	1
Anthocyanins§	11	53	181	221	30	23	0	9	0	3

n, numbers of data-pairs (comparisons) included in the meta-analysis; ORG, organic samples; CONV, conventional samples; FRAP, ferric reducing antioxidant potential; ORAC, oxygen radical absorbance capacity method; TEAC, Trolox equivalent antioxidant capacity. *The number of comparisons in which statistically significant difference was found with higher level in ORG; †The number of comparisons in which statistically significant difference was found with higher level in CONV; ‡The number of comparisons in which there was no significant difference between ORG and CONV; §Data for different compounds within the same chemical group were included in the same meta-analyses.

Table 8 cont. Basic information/statistics on the publications/data used for meta-analyses of composition parameters included in Fig. 3 and 4 in the main paper.

Parameter	Studies	*n*	No of ORG	No of CONV	Number of comparisons reporting that concentrations were: Numerically higher in ORG	Numerically higher in CONV	Identical	Significantly higher in ORG*	Significantly higher in CONV†	Not significantly different‡
Carotenoids (total)	15	15	134	134	13	2	0	3	1	1
Carotenoids§	55	167	1528	1594	97	66	4	17	16	34
Xanthophylls	18	70	735	741	46	21	3	9	6	10
Lutein	14	21	186	187	14	4	3	2	0	3
Ascorbic acid	45	65	1008	1065	43	22	0	10	2	21
Vitamin E	10	25	162	160	9	15	1	2	3	4
Carbohydrates (total)	41	60	562	655	37	22	1	11	0	18
Carbohydrates§	53	112	1288	1545	63	46	3	14	4	39
Sugars (reducing)	18	20	188	188	12	7	1	2	0	4
Protein (total)	56	87	1773	1942	24	61	2	6	9	16
Amino acids§	18	360	1875	1908	156	198	6	8	39	162
Dry matter	85	130	1447	1483	74	48	8	8	2	36
Fibre	7	19	239	235	4	11	4	0	2	11
Nitrogen (N)	55	88	2871	1181	26	59	3	2	11	16
Nitrates	40	80	1361	1596	24	56	0	3	12	17
Nitrites	7	15	105	113	2	13	0	0	0	2
Cadmium (Cd)	27	62	924	1087	16	45	1	1	2	15

n, numbers of data-pairs (comparisons) included in the meta-analysis; ORG, organic samples; CONV, conventional samples; FRAP, ferric reducing antioxidant potential; ORAC, oxygen radical absorbance capacity method; TEAC, Trolox equivalent antioxidant capacity. *The number of comparisons in which statistically significant difference was found with higher level in ORG; †The number of comparisons in which statistically significant difference was found with higher level in CONV; ‡The number of comparisons in which there was no significant difference between ORG and CONV; §Data for different compounds within the same chemical group were included in the same meta-analyses.

Table 9. Mean percentage differences (MPD) and confidence intervals (CI) calculated using the data included in for standard unweighted and weighted meta-analyses of composition parameters shown in Fig. 3 of the main paper (MPDs are also shown as symbols in Fig. 3).

	Calculated based on data included in					
	unweighted meta-analysis			weighted meta-analysis		
Parameter	***n***	**MPD***	**95% CI**	***n***	**MPD***	**95% CI**
Antioxidant activity	160	17.89	10.81, 24.96	66	17.38	2.52, 32.24
FRAP	14	14.95	2.45, 27.45	5	11.96	1.64, 22.27
ORAC	8	18.15	4.95, 31.34	4	21.01	1.87, 40.15
TEAC	22	26.63	8.78, 44.47	7	29.20	-21.82, 80.21
Phenolic compounds (total)	129	23.27	8.19, 38.35	58	25.83	-3.51, 55.16
Flavonoids (total)	20	-15.64	-51.28, 20.00	8	29.36	8.79, 49.94
Phenolic acids (total)	9	33.48	3.05, 63.91	3	4.63	3.25, 6.02
Phenolic acids†	153	21.09	-7.16, 49.35	89	18.85	5.05, 32.65
Chlorogenic acid	24	38.34	6.86, 69.82	14	35.64	-13.97, 85.26
Flavanones†	75	23.64	-34.65, 81.93	54	68.79	12.96, 124.62
Stilbenes	8	212.31	7.20, 417.42	4	27.94	11.71, 44.17
Flavones and flavonols	194	24.69	-10.49, 59.87	134	45.82	27.01, 64.63
Flavones	27	17.09	-3.74, 37.91	23	25.55	3.01, 48.08
Flavonols†	168	43.92	-9.79, 97.63	111	50.02	27.85, 72.19
Quercetin	23	29.14	0.10, 58.18	17	18.72	-7.89, 45.32
Rutin	12	54.39	1.37, 107.41	9	19.86	-4.67, 44.4
Kaempferol	14	46.79	6.64, 86.94	13	45.93	2.61, 89.26
Anthocyanins (total)	20	31.60	6.00, 57.2	10	44.38	-2.54, 91.31
Anthocyanins	53	30.53	8.25, 52.82	22	51.16	16.60, 85.72
Carotenoids (total)	15	21.88	6.51, 37.25	4	17.30	0.44, 34.16
Carotenoids†	163	18.96	7.49, 30.43	82	14.50	-2.60, 31.61
Xanthophylls†	66	25.02	11.14, 38.91	33	11.71	-4.26, 27.68
Lutein	21	16.64	0.39, 32.90	13	4.88	-3.25, 13.01
Ascorbic acid	65	28.78	-9.19, 66.74	30	5.91	-3.07, 14.88
Vitamin E	25	-9.15	-30.12, 11.81	15	-15.20	-49.04, 18.65
Carbohydrates (total)	60	13.00	2.32, 23.68	16	24.84	4.57, 45.12
Carbohydrates†	111	11.62	4.05, 19.20	53	11.12	2.04, 20.21
Sugars (reducing)	20	28.14	-0.15, 56.43	3	7.14	3.56, 10.73
Protein (total)	87	-9.18	-13.90, -4.45	26	-15.17	-27.08, -3.26
Amino acids†	332	-3.01	-4.84, -1.19	117	-10.75	-14.05, -7.46
Dry matter†	129	2.99	1.06, 4.91	24	2.46	-0.76, 5.68
Fibre	19	-7.32	-13.43, -1.21	15	-8.13	-14.35, -1.90
Nitrogen (N)	88	-6.75	-10.99, -2.52	35	-9.77	-15.33, -4.22
Nitrate†	79	-44.89	-91.62, 1.84	29	-30.09	-143.99, 83.81
Nitrite	15	-80.73	-149.22, -12.25	7	-86.53	-224.63, 51.57
Cadmium (Cd)	62	-69.07	-146.52, 8.39	25	-47.85	-111.61, 15.90

n, number of data points included in the comparison; MPD, mean percentage difference; FRAP, ferric reducing antioxidant potential; ORAC, oxygen radical absorbance capacity method; TEAC, Trolox equivalent antioxidant capacity. *Magnitude of difference between organic (ORG) and conventional (CONV) samples (value <0 indicate higher concentration in CONV, value >0 indicate higher concentration in ORG); †Outlying data-pairs for which the MPD between ORG and CONV was over 50 times higher than the mean value were removed.

Table 10. Mean percentage differences (MPD) and confidence intervals (CI) calculated using the data included in for standard unweighted and weighted meta-analyses of composition parameters shown in Fig. 4 of the main paper (MPDs are also shown as symbols in Fig. 4).

	Calculated based on data included in					
	unweighted meta-analysis			weighted meta-analysis		
Parameter*	***n***	**MPD†**	**95% CI**	***n***	**MPD†**	**95% CI**
Antioxidant activity						
Fruits	93	24.19	15.58, 32.80	39	20.16	3.03, 37.28
Vegetables	58	5.96	-7.15, 19.07	25	10.83	-17.74, 39.40
Other‡	5	32.80	22.11, 43.49	-	-	-
Phenolic compounds (total)						
Fruits	58	26.94	-2.26, 56.13	30	33.61	-18.66, 85.87
Vegetables	61	10.39	2.72, 18.05	25	7.65	-3.44, 18.74
Cereals	6	64.74	-38.78, 168.25	-	-	-
Phenolic acids§						
Fruits	83	18.62	4.35, 32.88	47	21.89	1.47, 42.32
Vegetables	48	26.46	2.40, 50.52	30	17.26	-7.80, 42.32
Cereals	21	4.10	-6.65, 14.85	12	10.90	-5.97, 27.77
Flavanones§						
Fruits	59	18.31	-27.40, 64.02	40	74.17	1.34, 147
Vegetables	16	50.68	-0.62, 101.99	14	53.43	-5.33, 112.19
Flavones and flavonols						
Fruits	87	1.68	-6.65, 10.02	47	13.75	-2.18, 29.68
Vegetables	98	44.08	13.82, 74.33	78	67.38	37.37, 97.4
Cereals	9	26.39	16.39, 36.39	9	26.39	16.39, 36.39
Carotenoids§						
Fruits	36	61.56	25.55, 97.57	19	60.87	-3.01, 124.74
Vegetables	101	7.17	-4.03, 18.38	39	-0.43	-6.47, 5.61
Cereals	14	2.40	-2.42, 7.22	14	2.40	-2.42, 7.22
Compound food‖	12	9.71	-33.32, 52.74	10	-19.84	-44.84, 5.15
Xanthophylls§						
Fruits	20	64.36	37.77, 90.95	9	39.84	-1.31, 80.98
Vegetables	26	16.92	-4.16, 37.99	5	34.84	0.22, 69.47
Cereals	14	2.40	-2.42, 7.22	14	2.40	-2.42, 7.22
Compound food‖	6	-18.17	-66.40, 30.05	5	-35.98	-76.75, 4.80
Carbohydrates (total)						
Fruits	24	2.39	-2.58, 7.35	6	2.64	-3.45, 8.72
Vegetables	31	19.67	0.93, 38.40	6	39.23	-0.72, 79.17
Cereals	4	27.88	-32.86, 88.62	-	-	-

n, number of data points included in the comparison; MPD, mean percentage difference; FRAP, ferric reducing antioxidant potential; ORAC, oxygen radical absorbance capacity method; TEAC, Trolox equivalent antioxidant capacity. *The summary results and product groups for which n≤3 were removed (for summary results see Table 9.), †Magnitude of difference between organic (ORG) and conventional (CONV) samples (value <0 indicate higher concentration in CONV, value >0 indicate higher concentration in ORG); ‡Tea (leaves), §Outlying data-pairs for which the MPD between ORG and CONV was over 50 times higher than the mean value were removed, ||Laboratory rat feed, baby food (berry-based dessert, chicken and vegetable dinner), whole diet.

Table 10 cont. Mean percentage differences (MPD) and confidence intervals (CI) calculated using the data included in for standard unweighted and weighted meta-analyses of composition parameters shown in Fig. 4 of the main paper (MPDs are also shown as symbols in Fig. 4).

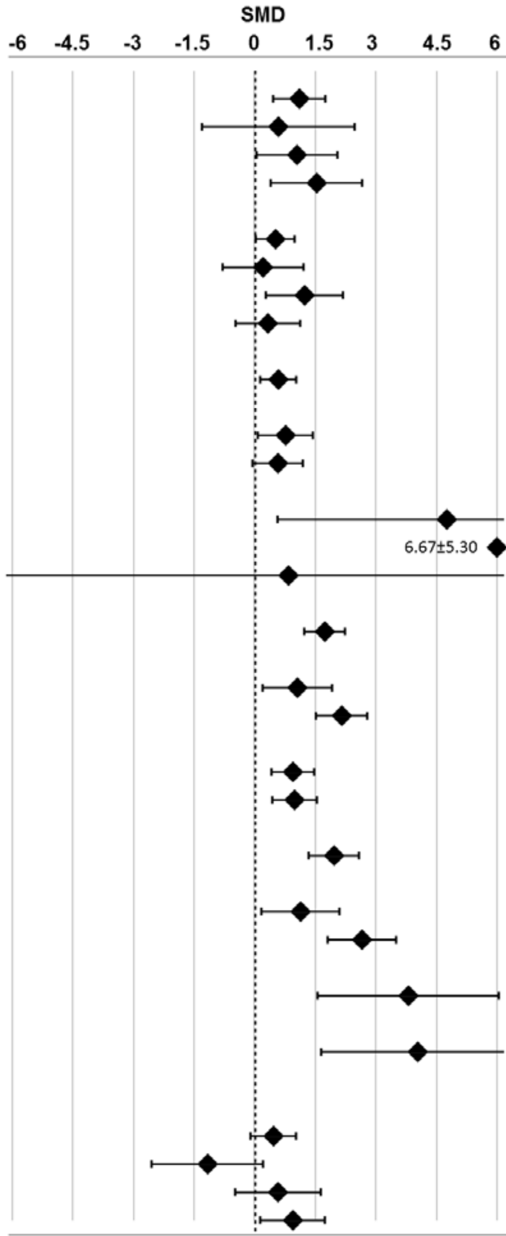
	Calculated based on data included in					
	unweighted meta-analysis			weighted meta-analysis		
Parameter*	***n***	**MPD†**	**95% CI**	***n***	**MPD†**	**95% CI**
Protein (total)						
Fruits	7	-4.91	-25.01, 15.20	-	-	-
Vegetables	34	0.79	-3.75, 5.33	8	2.98	-12.37, 18.34
Cereals	43	-18.08	-24.76, -11.39	15	-25.89	-42.96, -8.82
Amino acids§						
Fruits	38	2.70	1.62, 3.77	18	5.25	-0.08, 10.58
Vegetables	152	1.38	-1.23, 3.99	18	-7.10	-19.17, 4.97
Cereals	121	-7.97	-11.06, -4.88	63	-15.35	-19.33, -11.36
Compound food‖	21	-8.76	-10.43, -7.10	18	-9.54	-11.12, -7.96
Nitrogen (N)						
Fruits	19	-3.91	-14.40, 6.58	7	-9.85	-20.03, 0.33
Vegetables	42	-10.26	-16.49, -4.04	20	-5.82	-13.37, 1.72
Cereals	14	-14.31	-21.91, -6.72	7	-21.92	-33.21, -10.63
Herbs and spices	12	9.55	3.64, 15.47	-	-	-
Cadmium (Cd)						
Fruits	4	-288.82	-786.51, 208.87	-	-	-
Vegetables	34	-77.02	-138.52, -15.52	10	75.35	-272.91, 423.60
Cereals	17	-86.26	-141.88, -30.64	8	-151.25	-248.93, -53.57

n, number of data points included in the comparison; MPD, mean percentage difference; FRAP, ferric reducing antioxidant potential; ORAC, oxygen radical absorbance capacity method; TEAC, Trolox equivalent antioxidant capacity. *The summary results and product groups for which n≤3 were removed (for summary results see Table 9.), †Magnitude of difference between organic (ORG) and conventional (CONV) samples (value <0 indicate higher concentration in CONV, value >0 indicate higher concentration in ORG); ‡Tea (leaves), §Outlying data-pairs for which the MPD between ORG and CONV was over 50 times higher than the mean value were removed, ‖Laboratory rat feed, baby food (berry-based dessert, chicken and vegetable dinner), whole diet.

Table 11. Meta-analysis results for addition composition parameters (volatiles, solids, titratable acidity, and the minerals Cr, Ga, Mg, Mn, Mo, Rb, Sr, Zn) for which significant differences were detected by the standard weighted and unweighted meta-analysis protocols.

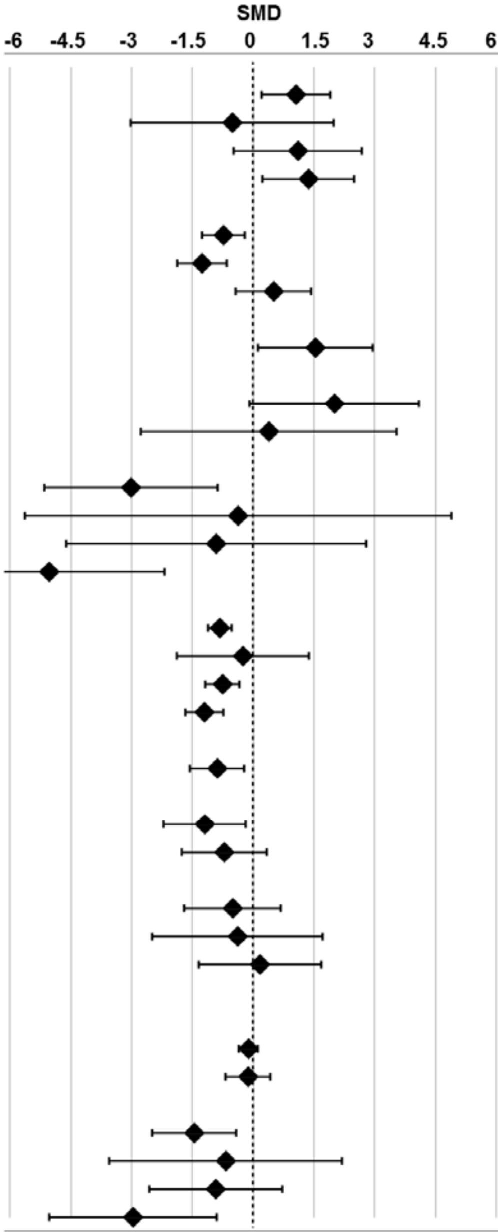
	Unweighted meta-analysis					Weighted meta-analysis						
Parameter	***n***	**Ln ratio***	***P*†**	**MPD‡**	**95% CI**	***n***	**SMD**	**95% CI**	***P*†**	**Heterogeneity§**	**MPD‡**	**95% CI**
Volatile compounds||	193	4.65	0.043	4.80	-1.06, 10.66	101	-0.73	-1.29, -0.18	0.010	Yes (86%)	-6.99	-15.34, 1.36
Solids||	83	4.61	0.238	0.69	-1.39, 2.77	29	0.35	0.07, 0.62	0.013	Yes (75%)	2.20	-0.58, 4.98
Solids (soluble)	79	4.61	0.216	0.76	-1.33, 2.85	27	0.27	0.01, 0.52	0.043	Yes (70%)	1.51	-1.31, 4.33
Titratable acidity	48	4.65	0.028	5.41	-0.11, 10.92	17	0.41	0.00, 0.81	0.049	Yes (81%)	6.99	1.55, 12.42
Chromium (Cr)	18	4.32	0.041	-53.13	-122.84, 16.57	14	-2.00	-3.68, -0.31	0.020	Yes (98%)	-58.84	-147.36, 29.67
Gallium (Ga)	7	4.25	0.024	-56.92	-122.30, 8.46	7	-5.62	-15.02, 3.78	0.241	Yes (100%)	-56.92	-122.30, 8.46
Magnesium (Mg)	97	4.67	<0.001	8.16	3.75, 12.58	33	0.15	-0.12, 0.42	0.284	Yes (84%)	4.06	-4.69, 12.80
Manganese (Mn)||	44	4.54	0.001	-6.74	-10.68, -2.79	20	-0.36	-0.67, -0.04	0.028	Yes (80%)	-8.38	-13.29, -3.48
Molybdenum (Mo)	20	4.96	<0.001	52.58	23.13, 82.03	7	1.26	0.46, 2.06	0.002	Yes (90%)	65.39	26.13, 104.66
Rubidium (Rb)	14	4.94	0.004	54.71	8.87, 100.54	8	1.04	0.26, 1.83	0.009	Yes (90%)	81.52	5.59, 157.46
Strontium (Sr)	15	4.46	0.005	-18.09	-30.80, -5.38	8	-0.40	-0.73, -0.07	0.016	Yes (66%)	-25.53	-44.93, -6.13
Zinc (Zn)	88	4.70	0.001	12.03	3.87, 20.20	37	0.20	-0.16, 0.57	0.268	Yes (91%)	4.65	-5.92, 15.22

n, number of data points included in the comparison; MPD, mean percentage difference; SMD, standardised mean difference of fixed-effect model.*Ln ratio = Ln(ORG/CONV × 100%); †*P* value <0.05 indicates significance of the difference in composition between organic and conventional crop/crop based food; ‡Magnitude of difference between organic (ORG) and conventional (CONV) samples (value <0 indicate higher concentration in CONV, value >0 indicate higher concentration in ORG); §Heterogeneity and the I^2 Statistic; ||Outlying data-pairs for which the % difference between ORG and CONV was over 50 times higher than the mean value were removed.



	Unweighted meta-analysis			Weighted meta-analysis	
Product*	*n*	Ln ratio†	*P*‡	*n*	*P*‡
Antioxidant activity					
ALL	160	4.74	<0.001	66	0.001
BS	28	4.62	0.408	15	0.548
CF	73	4.78	<0.001	27	0.045
EX	50	4.73	0.002	21	0.010
Phenolic compounds (total)					
ALL	129	4.74	<0.001	58	0.051
BS	26	4.69	0.238	16	0.684
CF	52	4.79	<0.001	17	0.014
EX	48	4.70	0.003	23	0.434
Phenolic acids§‖					
ALL	153	4.72	0.002	89	0.015
BS	10	4.50	0.299	-	-
CF	72	4.80	0.002	39	0.036
EX	64	4.68	0.044	45	0.086
Flavanones§‖					
ALL	75	4.73	0.100	54	0.027
BS	47	4.78	0.085	41	0.014
CF	22	4.63	0.455	9	0.874
Flavones and flavonols§					
ALL	194	4.78	<0.001	134	<0.001
BS	7	5.13	0.151	-	-
CF	88	4.64	0.313	48	0.020
EX	94	4.88	<0.001	83	<0.001
Flavones§					
ALL	27	4.72	0.063	23	0.001
EX	22	4.79	0.012	22	0.001
Flavonols§‖					
ALL	168	4.81	<0.001	111	<0.001
BS	6	5.90	0.015	-	-
CF	85	4.65	0.290	47	0.026
EX	72	4.91	<0.001	61	<0.001
Anthocyanins					
ALL	53	4.79	0.004	22	0.001
BS	4	5.46	0.061	-	-
CF	31	4.85	0.001	21	0.001
EX	16	4.46	0.094	-	-
Carotenoids§‖					
ALL	163	4.71	<0.001	82	0.126
BS	22	4.56	0.303	15	0.110
CF	56	4.61	0.445	24	0.301
EX	69	4.75	0.002	42	0.026

Figure 3. Results of the standard unweighted and weighted meta-analyses for different study types for antioxidant activity, plant secondary metabolites with antioxidant activity. SMD, standardised mean difference (error bars indicate 95% confidence intervals); n, number of data points included in meta-analyses. *for parameters where *n* ≤3 for specific study type results from weighted meta-analyses are not shown, †Ln ratio = Ln(ORG/CONV × 100%), ‡*P* value <0.05 indicates a significant difference between ORG and CONV, §data for different compounds within the same chemical group were included in the same meta-analyses, ‖outlying data points (where the % difference between ORG and CONV was more than 50 times higher than the mean value including the outliers) were removed.



	Unweighted meta-analysis			Weighted meta-analysis	
Product*	*n*	Ln ratio†	*P*‡	*n*	*P*‡
Xanthophylls‖					
ALL	66	4.78	<0.001	33	0.018
BS	5	4.51	0.466	4	0.696
CF	23	4.60	0.494	10	0.179
EX	27	4.82	0.001	19	0.022
Volatile compounds§‖					
ALL	193	4.65	0.043	101	0.010
CF	85	4.49	0.001	74	<0.001
EX	106	4.78	<0.001	26	0.301
Carbohydrates (total)					
ALL	60	4.71	0.003	16	0.037
BS	9	4.59	0.453	-	-
CF	32	4.74	<0.001	9	0.064
EX	18	4.70	0.018	4	0.811
Protein (total)					
ALL	87	4.53	<0.001	26	0.007
BS	9	4.54	0.097	4	0.892
CF	20	4.54	0.139	8	0.634
EX	57	4.52	<0.001	14	0.001
Amino acids§‖					
ALL	332	4.58	0.001	117	<0.001
BS	47	4.69	<0.001	4	0.764
CF	74	4.55	0.002	51	0.002
EX	196	4.56	<0.001	47	<0.001
Nitrogen (N)					
ALL	88	4.55	0.001	35	0.015
BS	5	4.54	0.246	-	-
CF	34	4.52	0.004	17	0.026
EX	48	4.57	0.062	16	0.198
Nitrate‖					
ALL	79	4.33	0.001	29	0.429
BS	25	4.17	0.001	9	0.731
CF	32	4.49	0.222	17	0.833
EX	21	4.26	0.015	-	-
Nitrite					
ALL	15	4.17	<0.001	7	0.419
BS	12	4.22	0.002	4	0.683
Cadmium (Cd)					
ALL	62	4.25	<0.001	25	0.008
BS	21	3.90	0.002	4	0.652
CF	16	4.45	0.053	12	0.279
EX	24	4.44	0.180	9	0.006

Figure 4. Results of the standard unweighted and weighted meta-analyses for different study types for plant secondary metabolites with antioxidant activity, volatile compounds, macronutrients, nitrogen compounds and cadmium. SMD, standardised mean difference (error bars indicate 95% confidence intervals); n, number of data points included in meta-analyses. *for parameters where *n* ≤3 for specific study type results from weighted meta-analyses are not shown, †Ln ratio = Ln(ORG/CONV × 100%), ‡*P* value <0.05 indicates a significant difference between ORG and CONV, §data for different compounds within the same chemical group were included in the same meta-analyses, ‖outlying data points (where the % difference between ORG and CONV was more than 50 times higher than the mean value including the outliers) were removed.

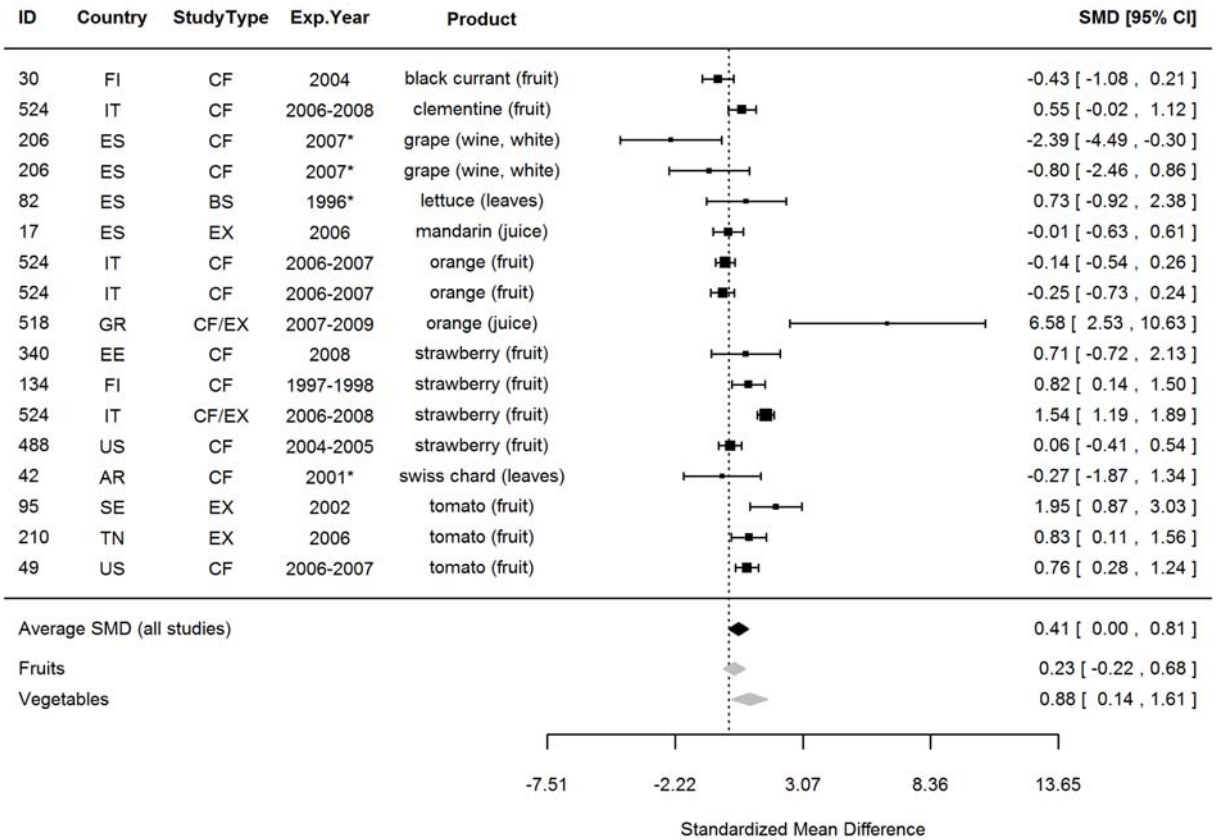


Figure 5. Forest plot showing the results of the comparison of titratable acidity between organic and conventional plant foods using standardised mean differences (SMDs) with 95% confidence intervals (CI), for studies included in standard weighted meta-analysis. The estimated average SMD for all studies and SMDs for different product groups are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic foods. ID, Paper unique identification number (see Table 2 for references). *No information about the experimental year (estimated as publication year - 2).

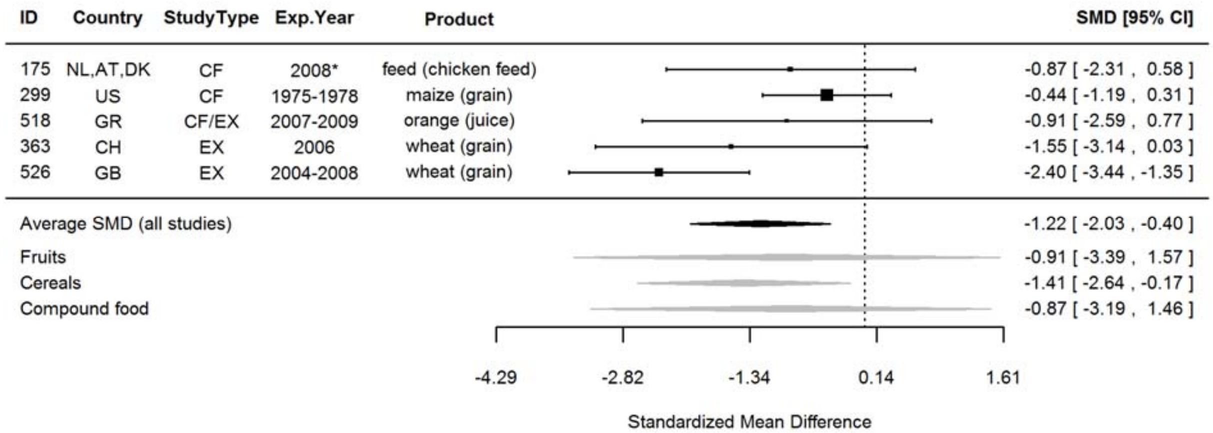


Figure 6. Forest plot showing the results of the comparison of arginine (Arg) between organic and conventional plant foods using standardised mean differences (SMDs) with 95% confidence intervals (CI), for studies included in standard weighted meta-analysis. The estimated average SMD for all studies and SMDs for different product groups are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic foods. ID, Paper unique identification number (see Table 2 for references). *No information about the experimental year (estimated as publication year - 2).

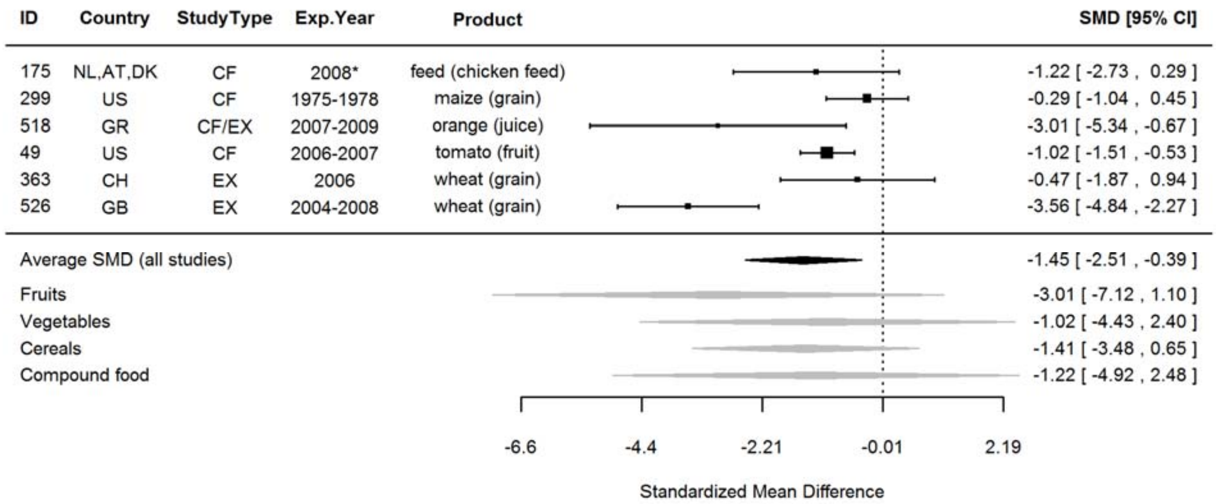


Figure 7. Forest plot showing the results of the comparison of histidine (His) between organic and conventional plant foods using standardised mean differences (SMDs) with 95% confidence intervals (CI), for studies included in standard weighted meta-analysis. The estimated average SMD for all studies and SMDs for different product groups are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic foods. ID, Paper unique identification number (see Table 2 for references). *No information about the experimental year (estimated as publication year - 2).

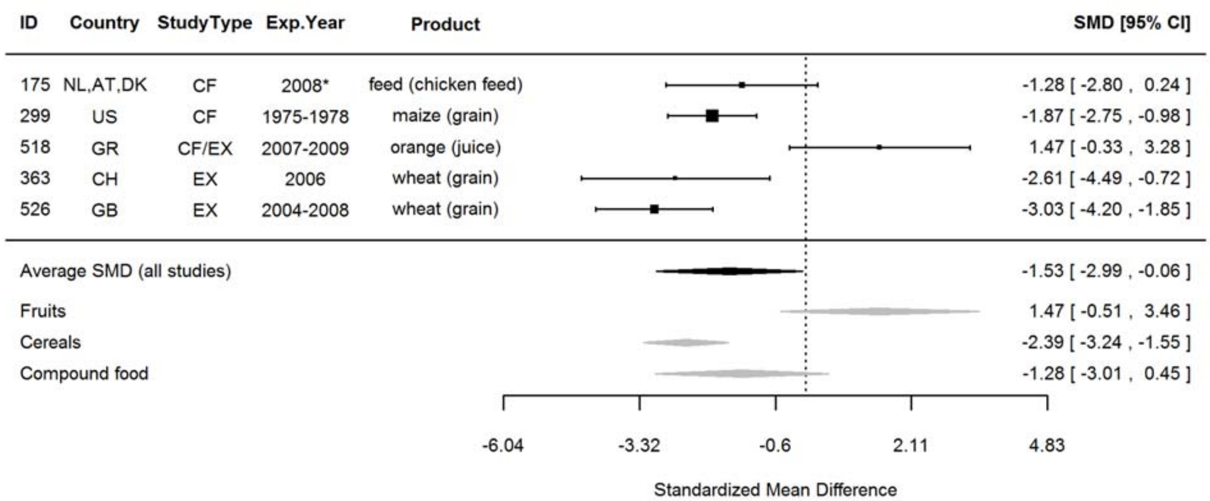


Figure 8. Forest plot showing the results of the comparison of isoleucine (Ile) between organic and conventional plant foods using standardised mean differences (SMDs) with 95% confidence intervals (CI), for studies included in standard weighted meta-analysis. The estimated average SMD for all studies and SMDs for different product groups are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic foods. ID, Paper unique identification number (see Table 2 for references). *No information about the experimental year (estimated as publication year - 2).

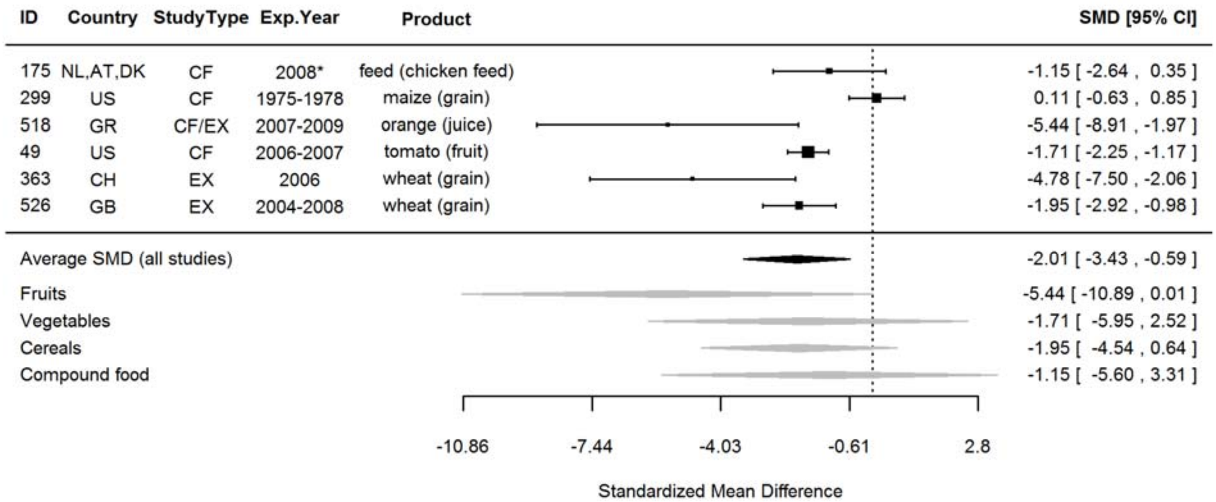


Figure 9. Forest plot showing the results of the comparison of lysine (Lys) between organic and conventional plant foods using standardised mean differences (SMDs) with 95% confidence intervals (CI), for studies included in standard weighted meta-analysis. The estimated average SMD for all studies and SMDs for different product groups are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic foods. ID, Paper unique identification number (see Table 2 for references). *No information about the experimental year (estimated as publication year - 2).

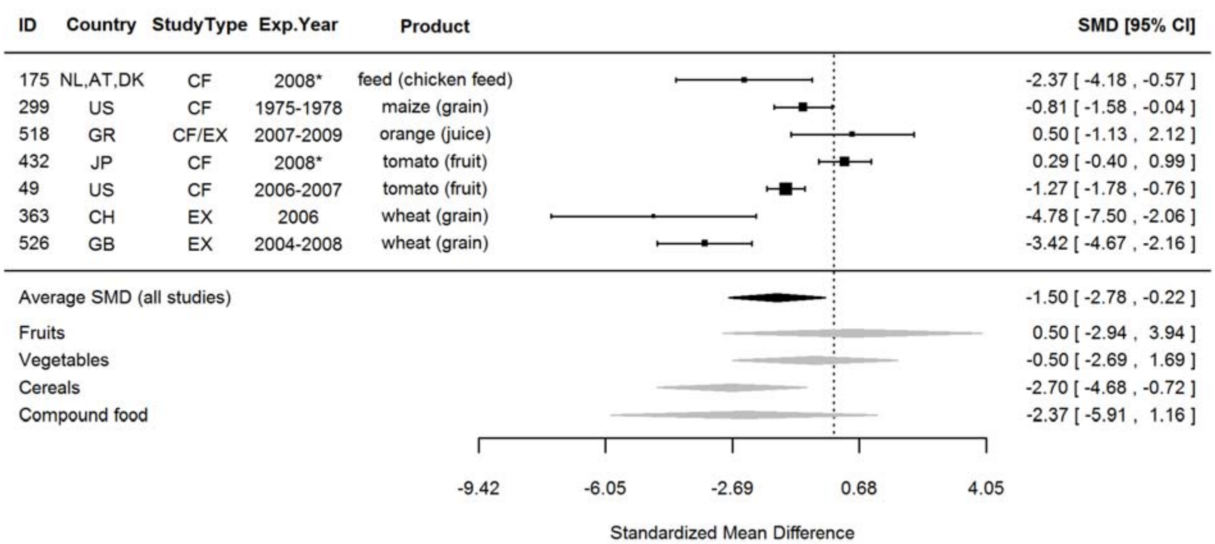


Figure 10. Forest plot showing the results of the comparison of phenylalanine (Phe) between organic and conventional plant foods using standardised mean differences (SMDs) with 95% confidence intervals (CI), for studies included in standard weighted meta-analysis. The estimated average SMD for all studies and SMDs for different product groups are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic foods. ID, Paper unique identification number (see Table 2 for references). *No information about the experimental year (estimated as publication year - 2).

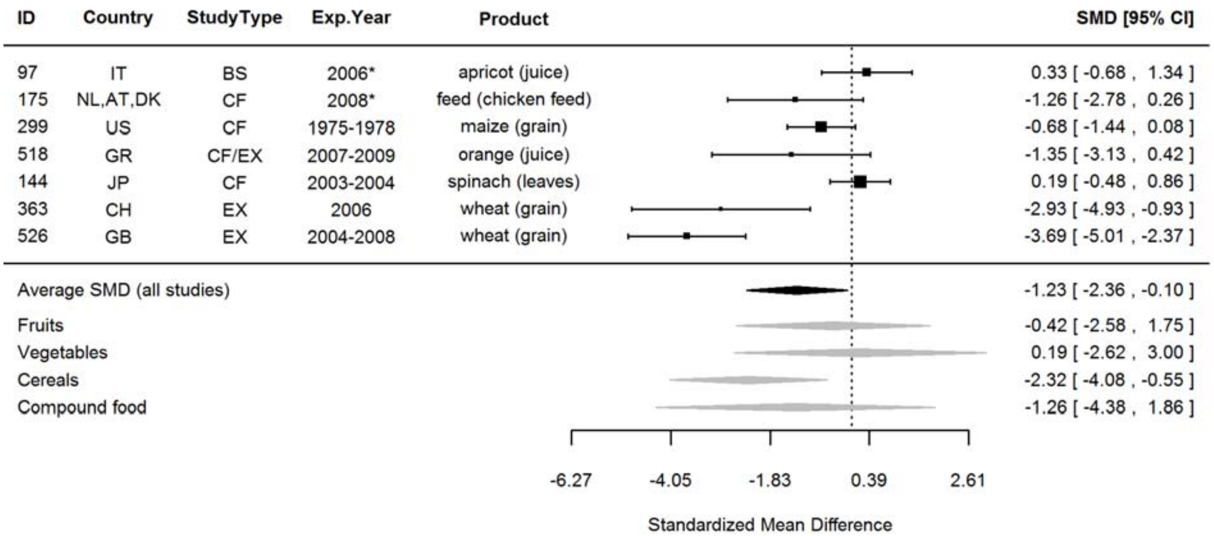


Figure 11. Forest plot showing the results of the comparison of proline (Pro) between organic and conventional plant foods using standardised mean differences (SMDs) with 95% confidence intervals (CI), for studies included in standard weighted meta-analysis. The estimated average SMD for all studies and SMDs for different product groups are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic foods. ID, Paper unique identification number (see Table 2 for references). *No information about the experimental year (estimated as publication year - 2).

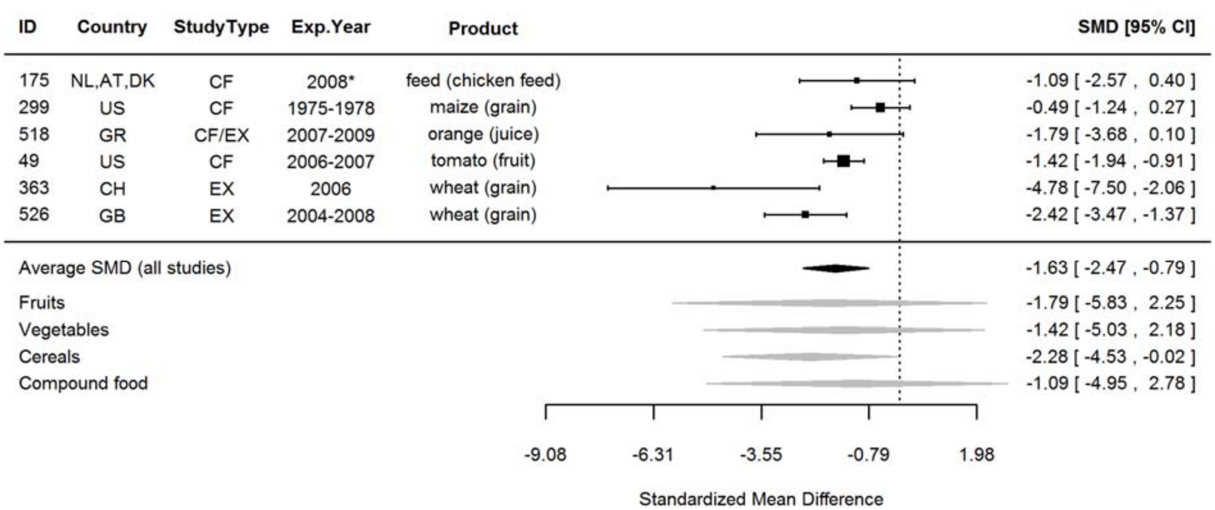


Figure 12. Forest plot showing the results of the comparison of threonine (Thr) between organic and conventional plant foods using standardised mean differences (SMDs) with 95% confidence intervals (CI), for studies included in standard weighted meta-analysis. The estimated average SMD for all studies and SMDs for different product groups are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic foods. ID, Paper unique identification number (see Table 2 for references). *No information about the experimental year (estimated as publication year - 2).

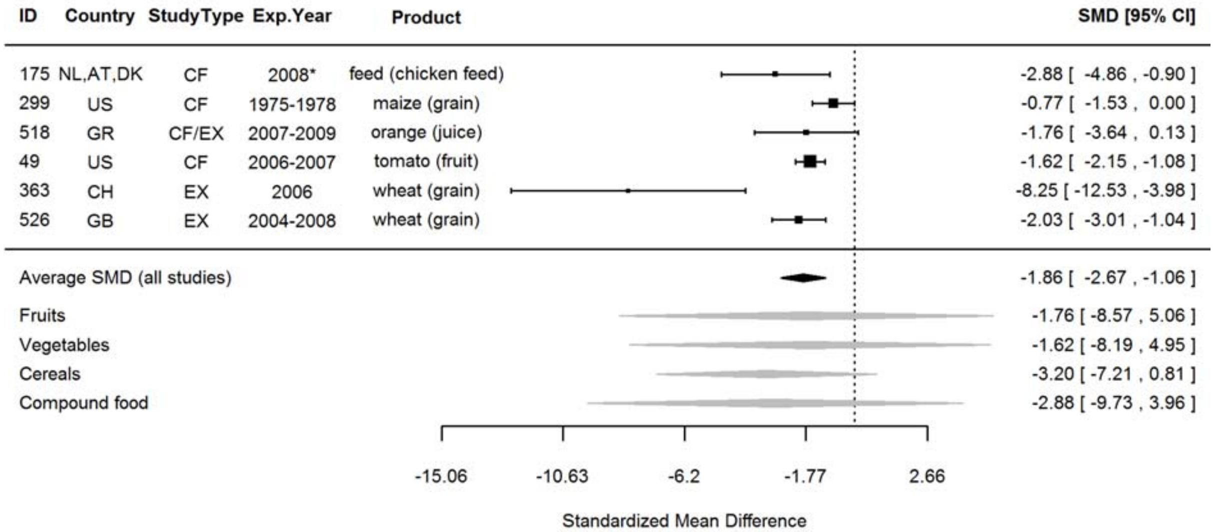


Figure 13. Forest plot showing the results of the comparison of tyrosine (Tyr) between organic and conventional plant foods using standardised mean differences (SMDs) with 95% confidence intervals (CI), for studies included in standard weighted meta-analysis. The estimated average SMD for all studies and SMDs for different product groups are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic foods. ID, Paper unique identification number (see Table 2 for references). *No information about the experimental year (estimated as publication year - 2).

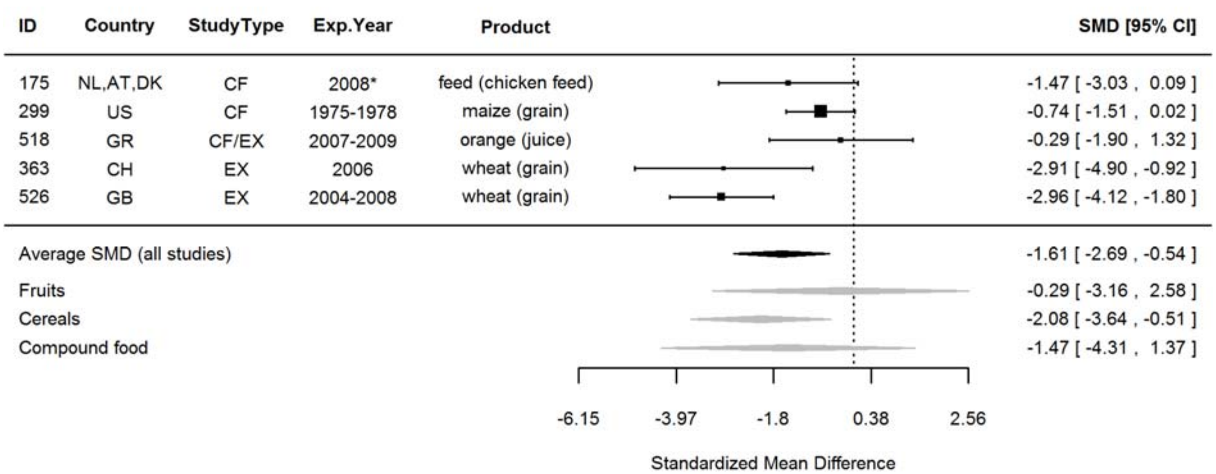


Figure 14. Forest plot showing the results of the comparison of valine (Val) between organic and conventional plant foods using standardised mean differences (SMDs) with 95% confidence intervals (CI), for studies included in standard weighted meta-analysis. The estimated average SMD for all studies and SMDs for different product groups are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic foods. ID, Paper unique identification number (see Table 2 for references). *No information about the experimental year (estimated as publication year - 2).

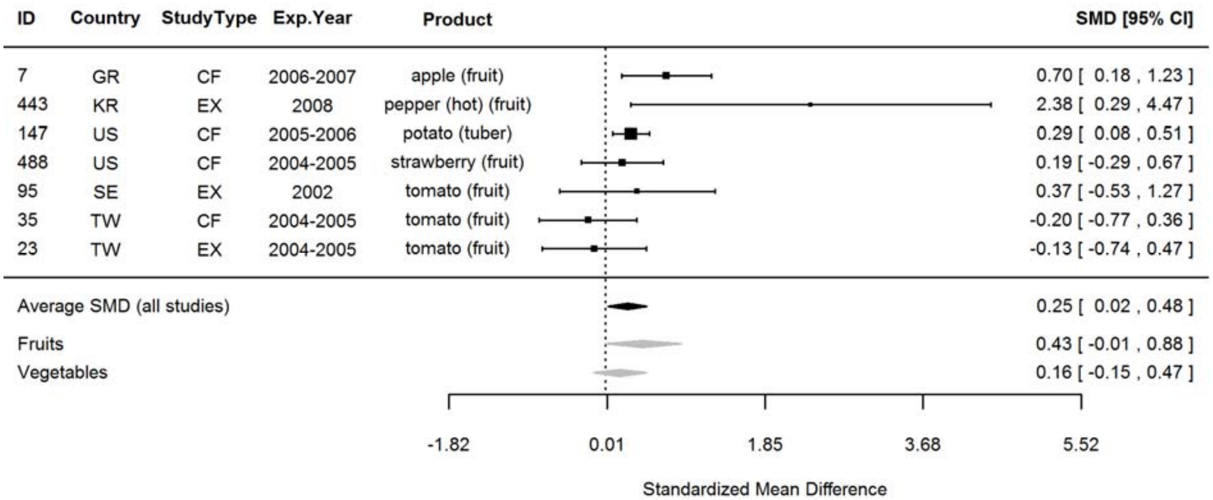


Figure 15. Forest plot showing the results of the comparison of antioxidant activity (TEAC) between organic and conventional plant foods using standardised mean differences (SMDs) with 95% confidence intervals (CI), for studies included in standard weighted meta-analysis. The estimated average SMD for all studies and SMDs for different product groups are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic foods. ID, Paper unique identification number (see Table 2 for references).

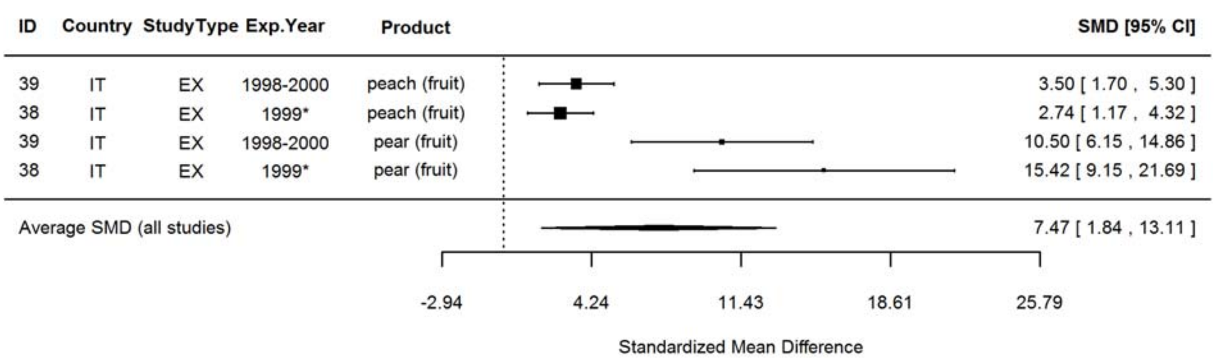


Figure 16. Forest plot showing the results of the comparison of polyphenoloxidase (PPO) activity (towards chlorogenic acid) between organic and conventional plant foods using standardised mean differences (SMDs) with 95% confidence intervals (CI), for studies included in standard weighted meta-analysis. The estimated average SMD for all studies is indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic foods. ID, Paper unique identification number (see Table 2 for references). *No information about the experimental year (estimated as publication year - 2).

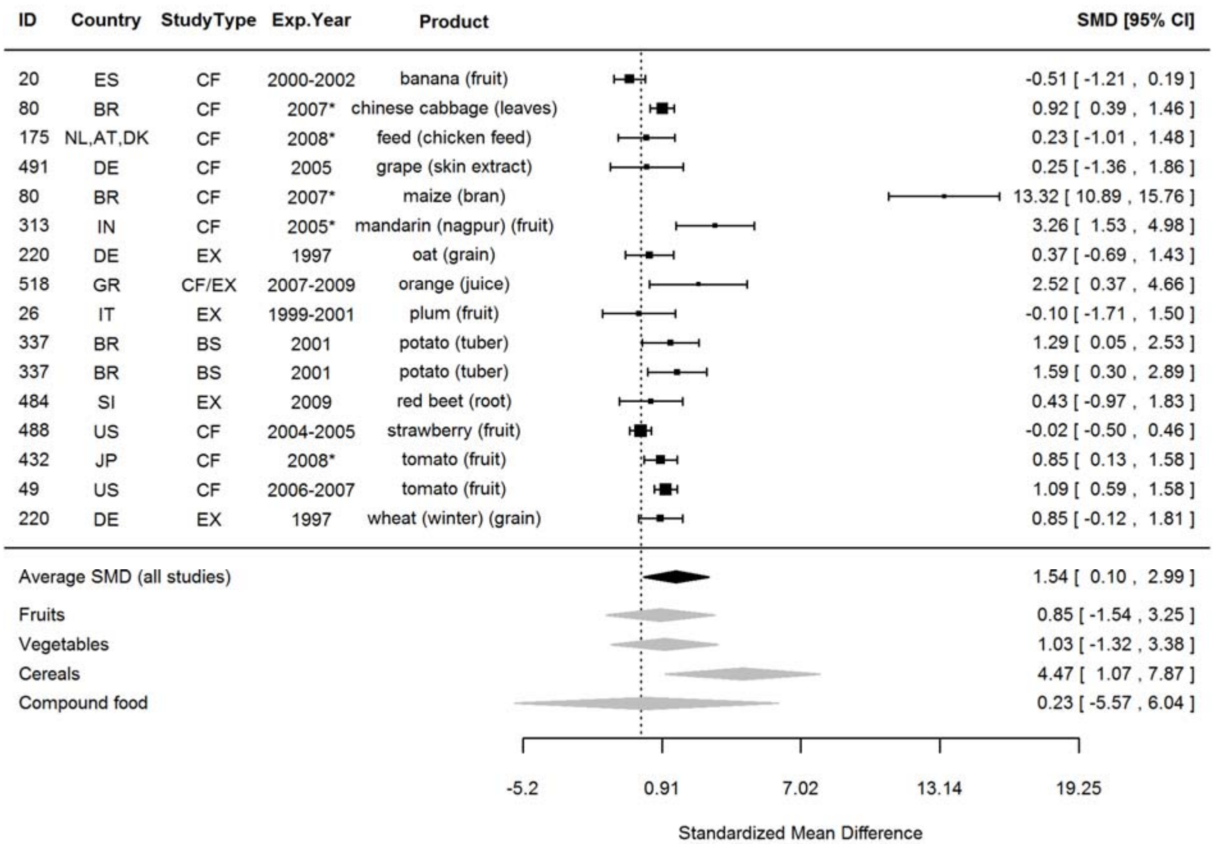


Figure 17. Forest plot showing the results of the comparison of carbohydrates (total) between organic and conventional plant foods using standardised mean differences (SMDs) with 95% confidence intervals (CI), for studies included in standard weighted meta-analysis. The estimated average SMD for all studies and SMDs for different product groups are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic foods. ID, Paper unique identification number (see Table 2 for references). *No information about the experimental year (estimated as publication year - 2).

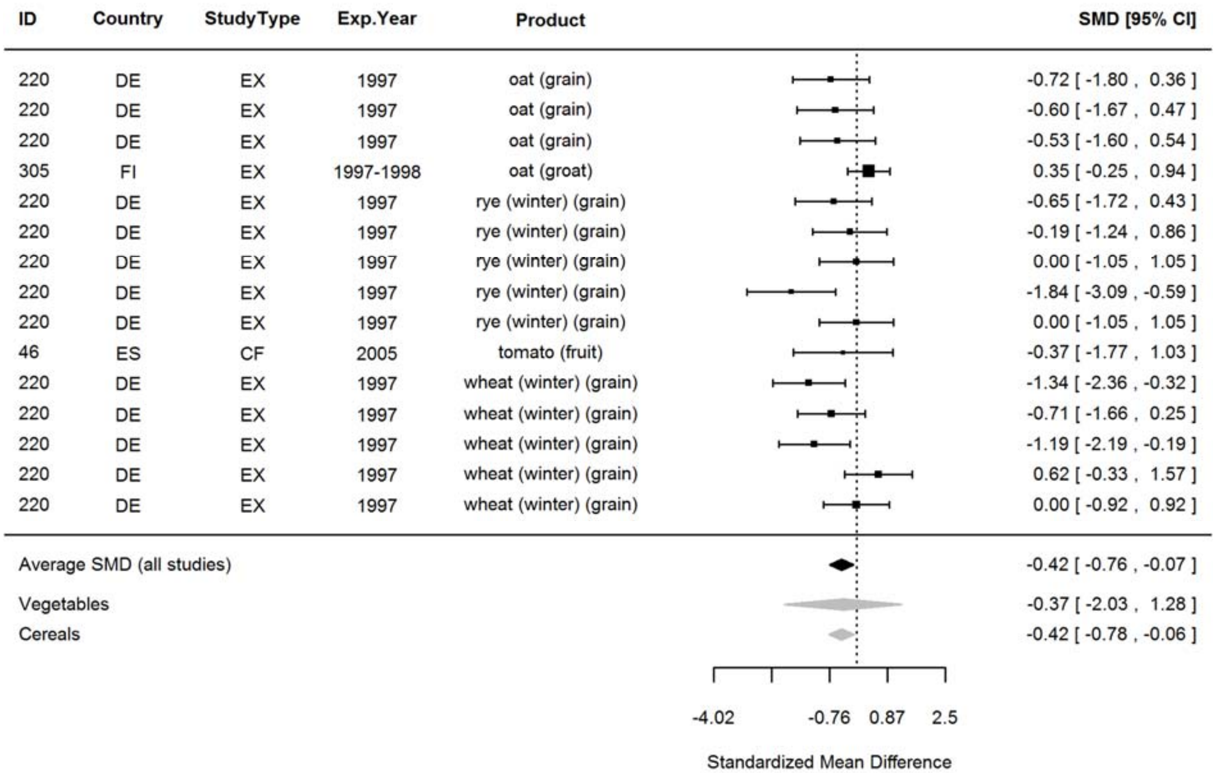


Figure 18. Forest plot showing the results of the comparison of fibre between organic and conventional plant foods using standardised mean differences (SMDs) with 95% confidence intervals (CI), for studies included in standard weighted meta-analysis. The estimated average SMD for all studies and SMDs for different product groups are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic foods. ID, Paper unique identification number (see Table 2 for references).

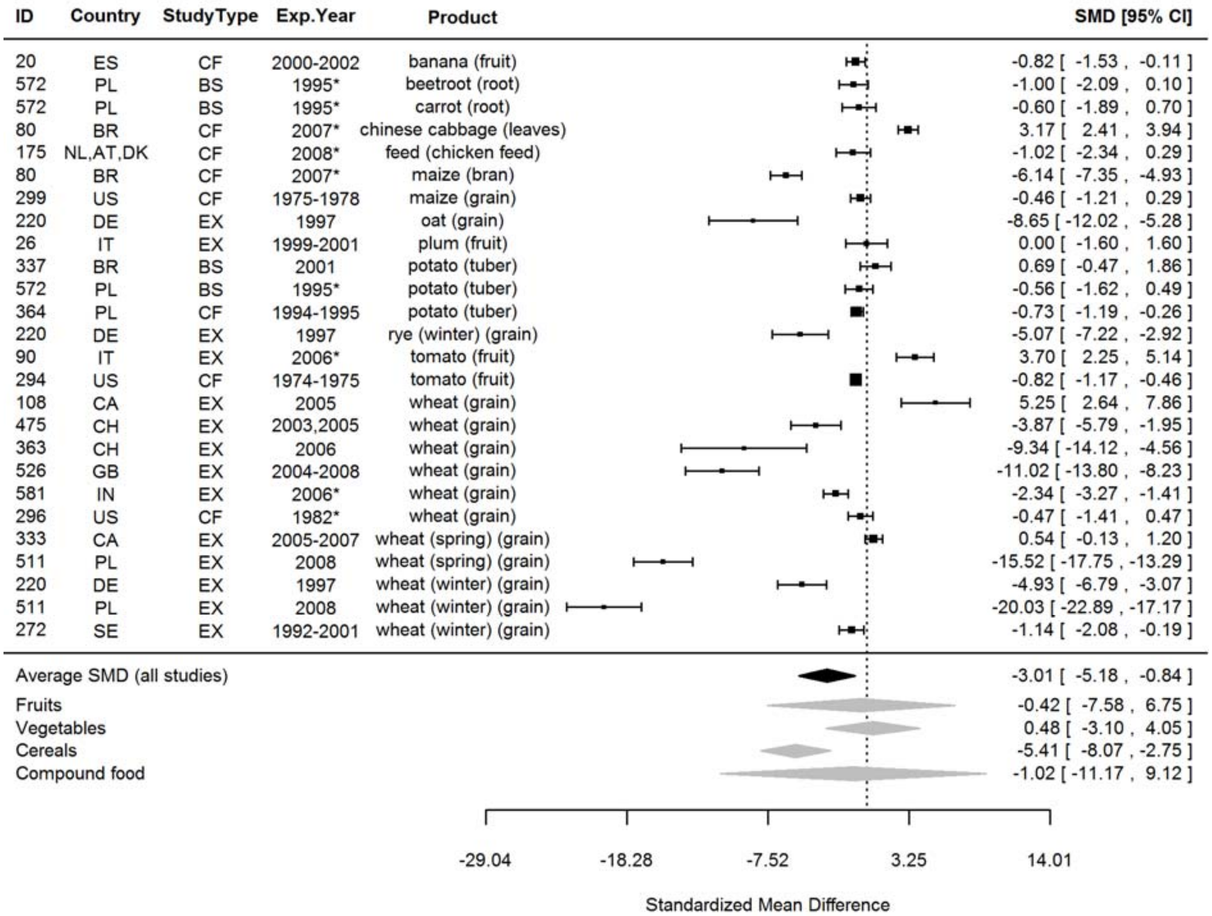


Figure 19. Forest plot showing the results of the comparison of protein (total) between organic and conventional plant foods using standardised mean differences (SMDs) with 95% confidence intervals (CI), for studies included in standard weighted meta-analysis. The estimated average SMD for all studies and SMDs for different product groups are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic foods. ID, Paper unique identification number (see Table 2 for references). *No information about the experimental year (estimated as publication year - 2).

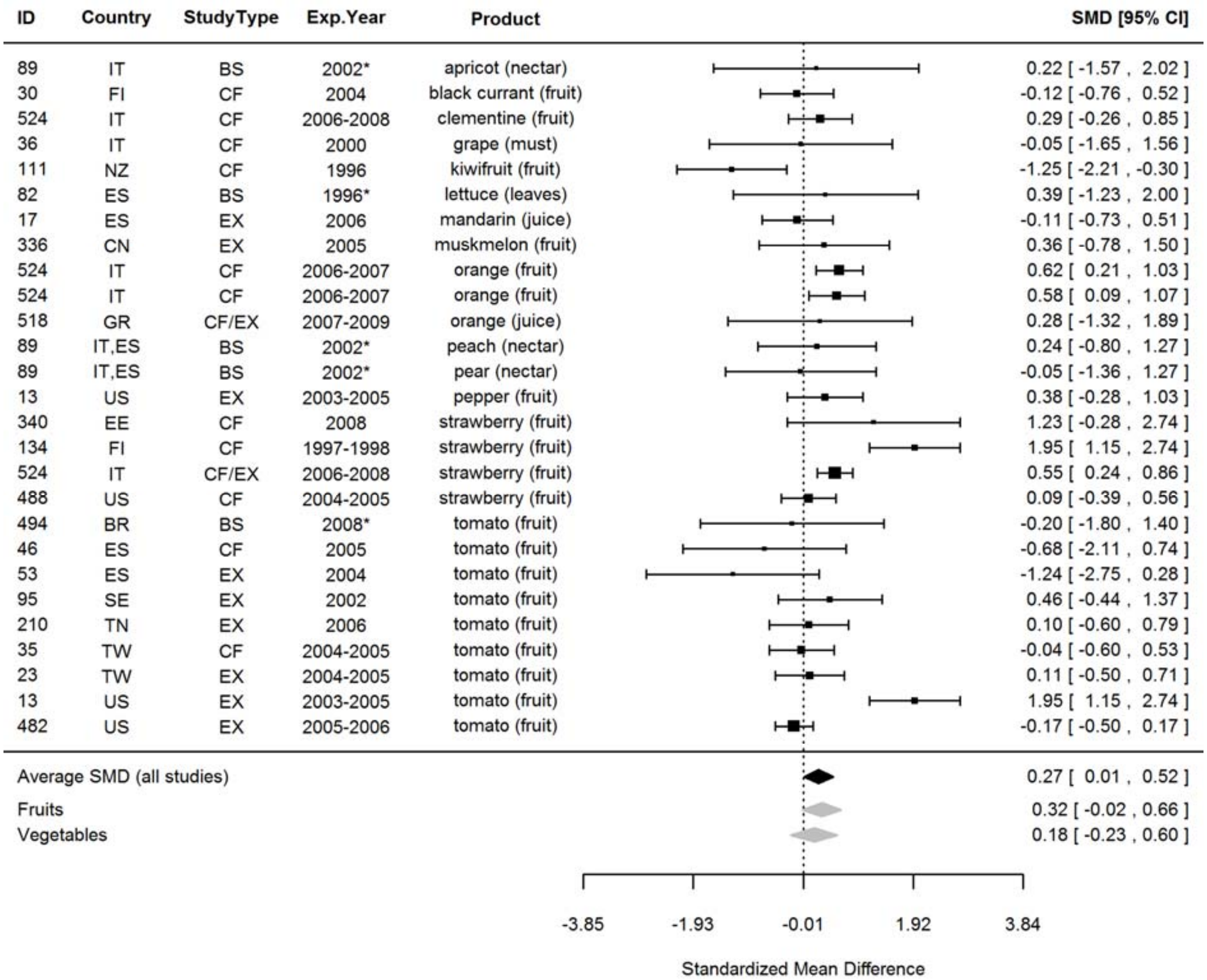


Figure 20. Forest plot showing the results of the comparison of solids (soluble) between organic and conventional plant foods using standardised mean differences (SMDs) with 95% confidence intervals (CI), for studies included in standard weighted meta-analysis. The estimated average SMD for all studies and SMDs for different product groups are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic foods. ID, Paper unique identification number (see Table 2 for references). *No information about the experimental year (estimated as publication year - 2).

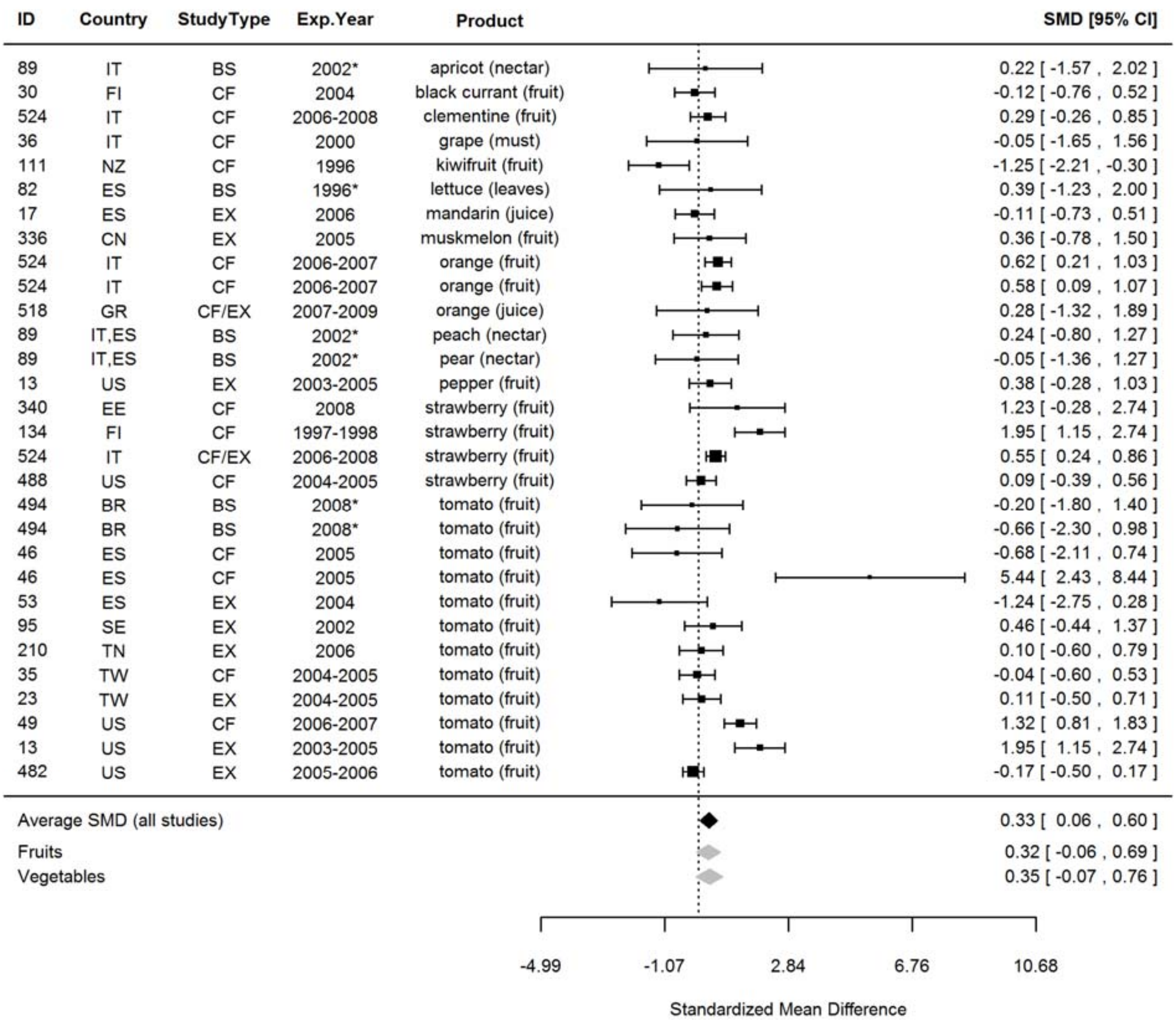


Figure 21. Forest plot showing the results of the comparison of solids between organic and conventional plant foods using standardised mean differences (SMDs) with 95% confidence intervals (CI), for studies included in standard weighted meta-analysis. The estimated average SMD for all studies and SMDs for different product groups are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic foods. ID, Paper unique identification number (see Table 2 for references). *No information about the experimental year (estimated as publication year - 2).

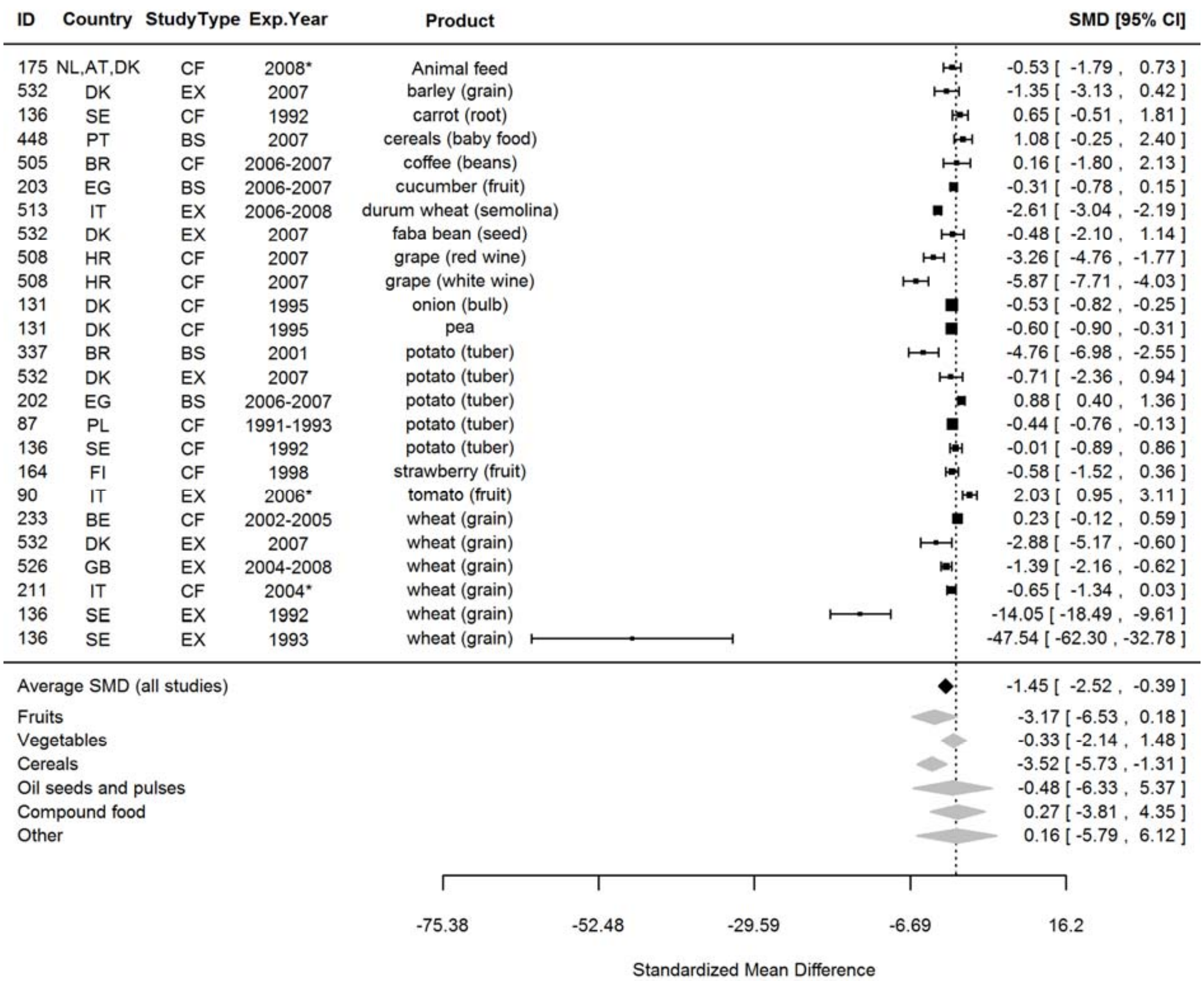


Figure 22. Forest plot showing the results of the comparison of cadmium (Cd) between organic and conventional plant foods using standardised mean differences (SMDs) with 95% confidence intervals (CI), for studies included in standard weighted meta-analysis. The estimated average SMD for all studies and SMDs for different product groups are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic foods. ID, Paper unique identification number (see Table 2 for references). *No information about the experimental year (estimated as publication year - 2).

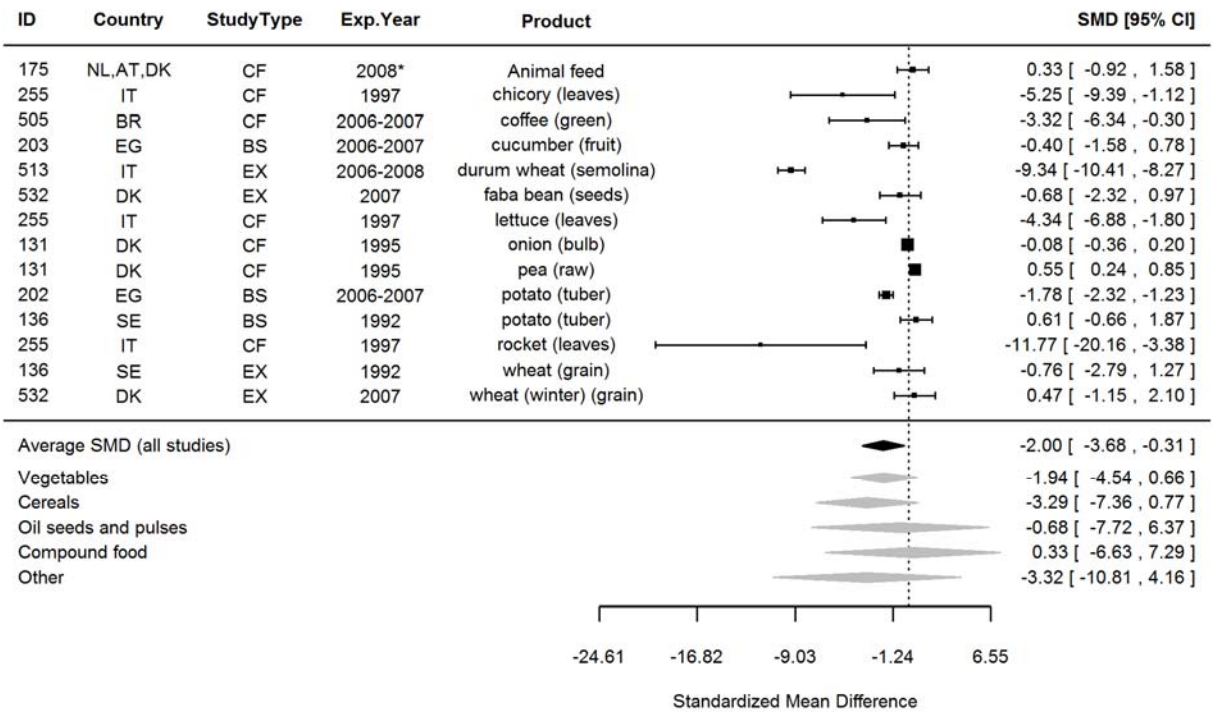


Figure 23. Forest plot showing the results of the comparison of chromium (Cr) between organic and conventional plant foods using standardised mean differences (SMDs) with 95% confidence intervals (CI), for studies included in standard weighted meta-analysis. The estimated average SMD for all studies and SMDs for different product groups are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic foods. ID, Paper unique identification number (see Table 2 for references). *No information about the experimental year (estimated as publication year - 2).

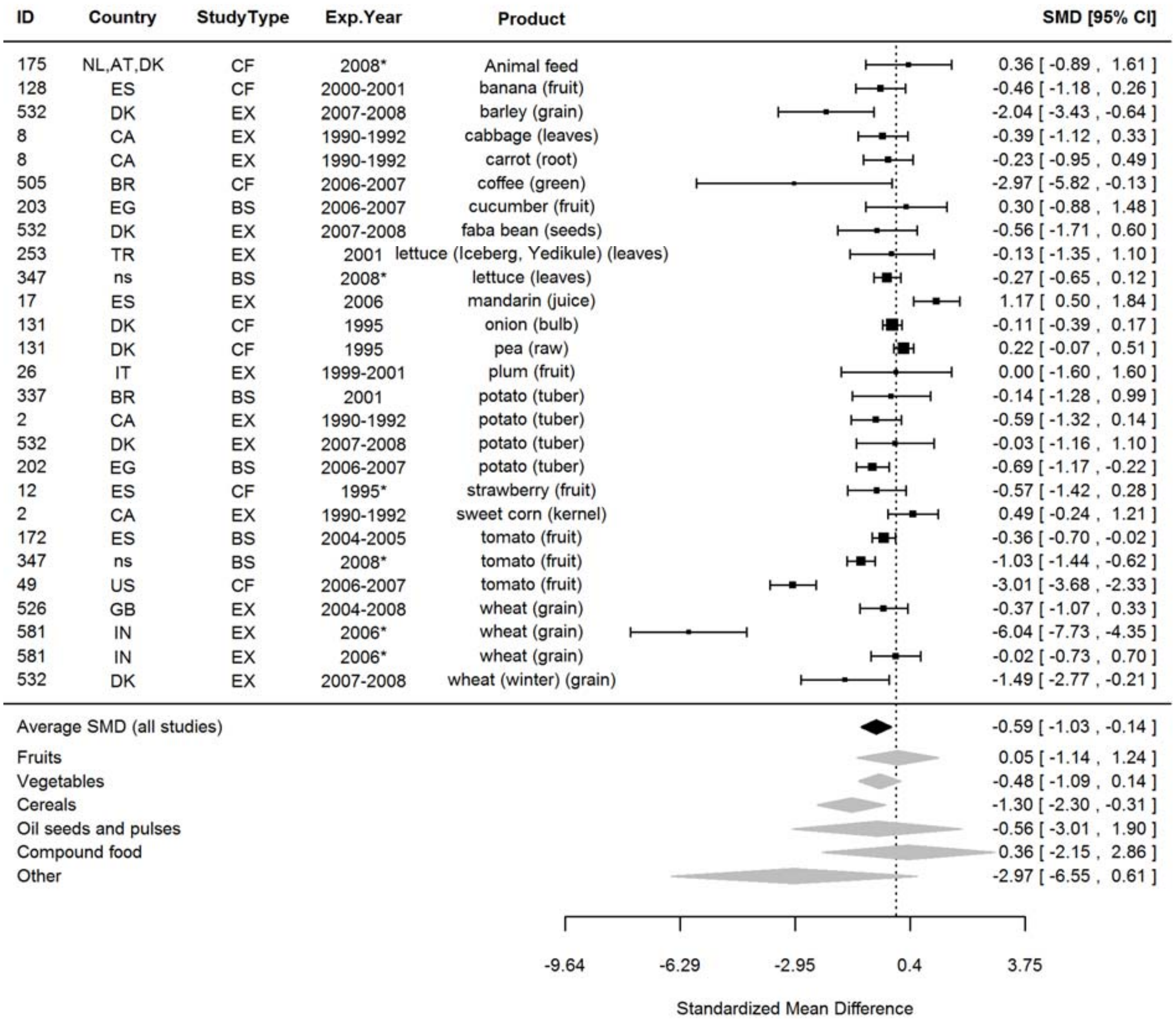


Figure 24. Forest plot showing the results of the comparison of manganese (Mn) between organic and conventional plant foods using standardised mean differences (SMDs) with 95% confidence intervals (CI), for studies included in standard weighted meta-analysis. The estimated average SMD for all studies and SMDs for different product groups are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic foods. ID, Paper unique identification number (see Table 2 for references). *No information about the experimental year (estimated as publication year - 2).

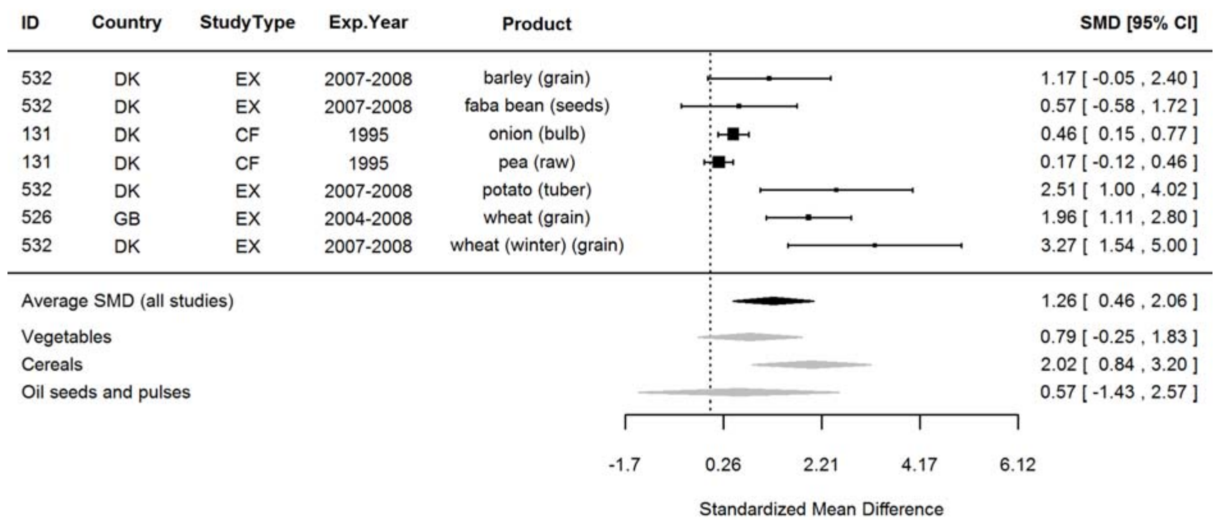


Figure 25. Forest plot showing the results of the comparison of molybdenum (Mo) between organic and conventional plant foods using standardised mean differences (SMDs) with 95% confidence intervals (CI), for studies included in standard weighted meta-analysis. The estimated average SMD for all studies and SMDs for different product groups are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic foods. ID, Paper unique identification number (see Table 2 for references).

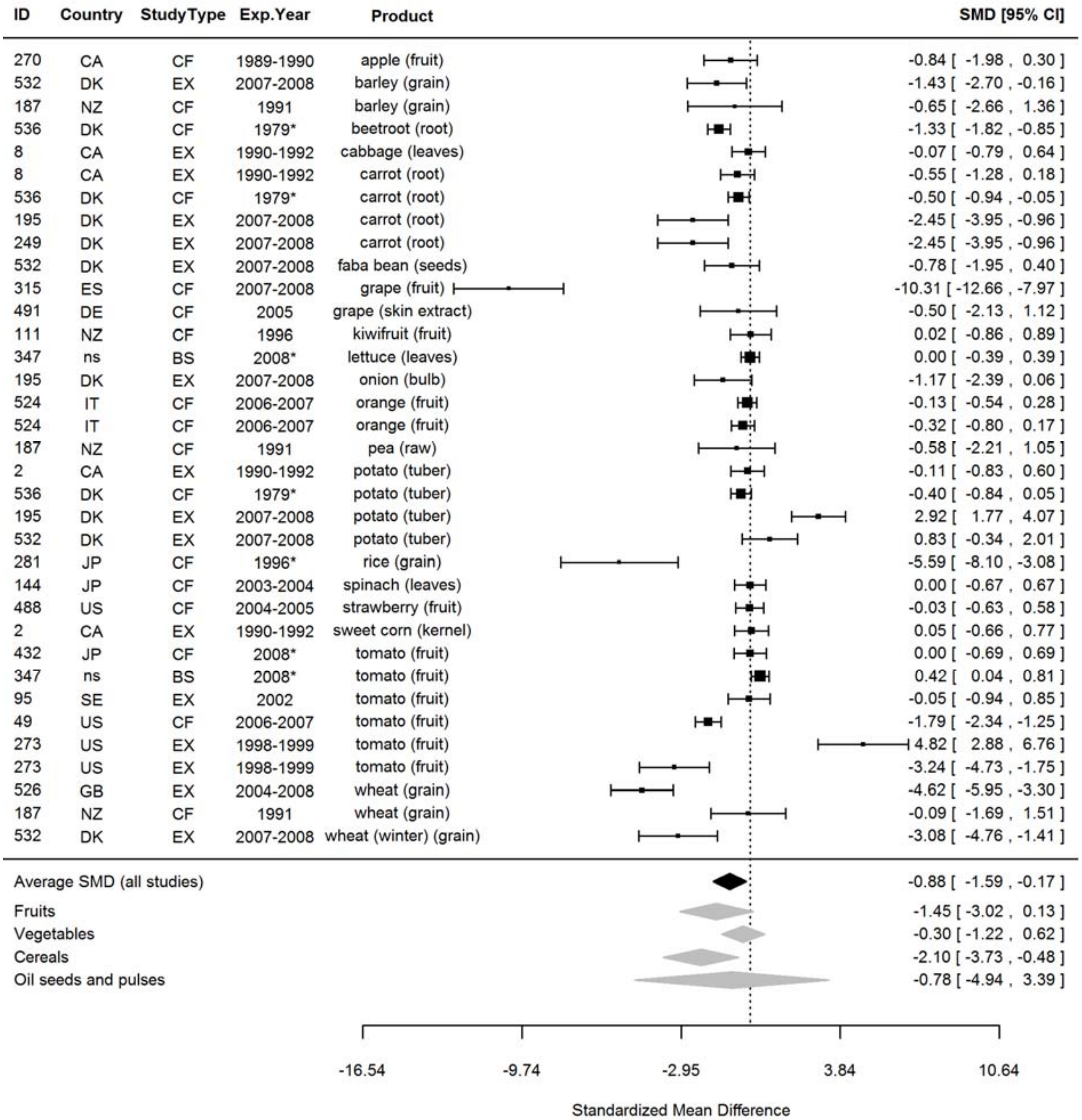


Figure 26. Forest plot showing the results of the comparison of nitrogen (N) between organic and conventional plant foods using standardised mean differences (SMDs) with 95% confidence intervals (CI), for studies included in standard weighted meta-analysis. The estimated average SMD for all studies and SMDs for different product groups are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic foods. ID, Paper unique identification number (see Table 2 for references). *No information about the experimental year (estimated as publication year - 2).

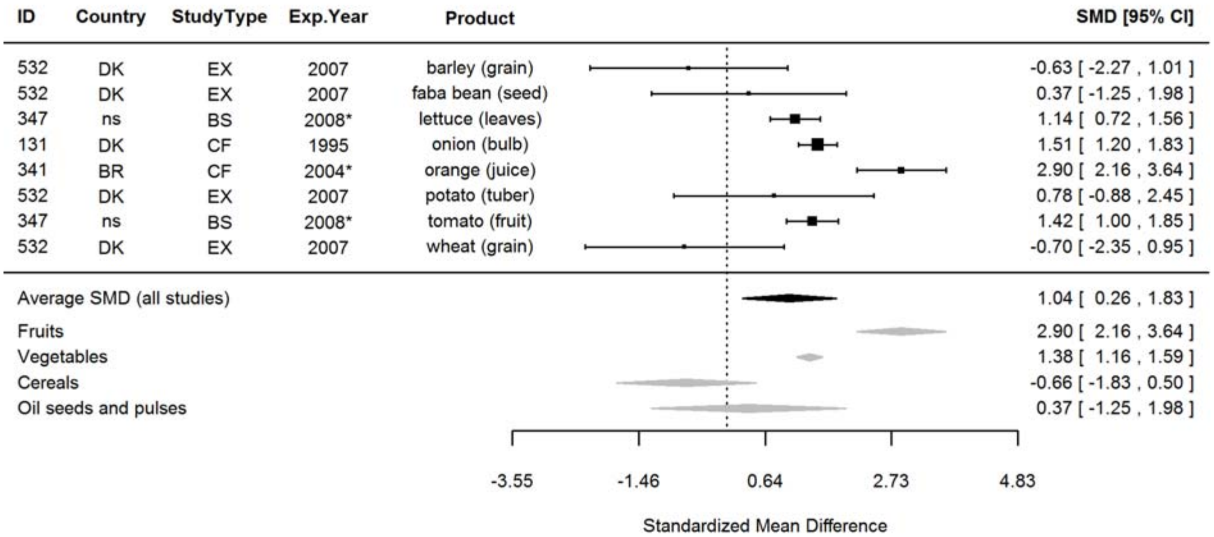


Figure 27. Forest plot showing the results of the comparison of rubidium (Rb) between organic and conventional plant foods using standardised mean differences (SMDs) with 95% confidence intervals (CI), for studies included in standard weighted meta-analysis. The estimated average SMD for all studies and SMDs for different product groups are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic foods. ID, Paper unique identification number (see Table 2 for references). *No information about the experimental year (estimated as publication year - 2).

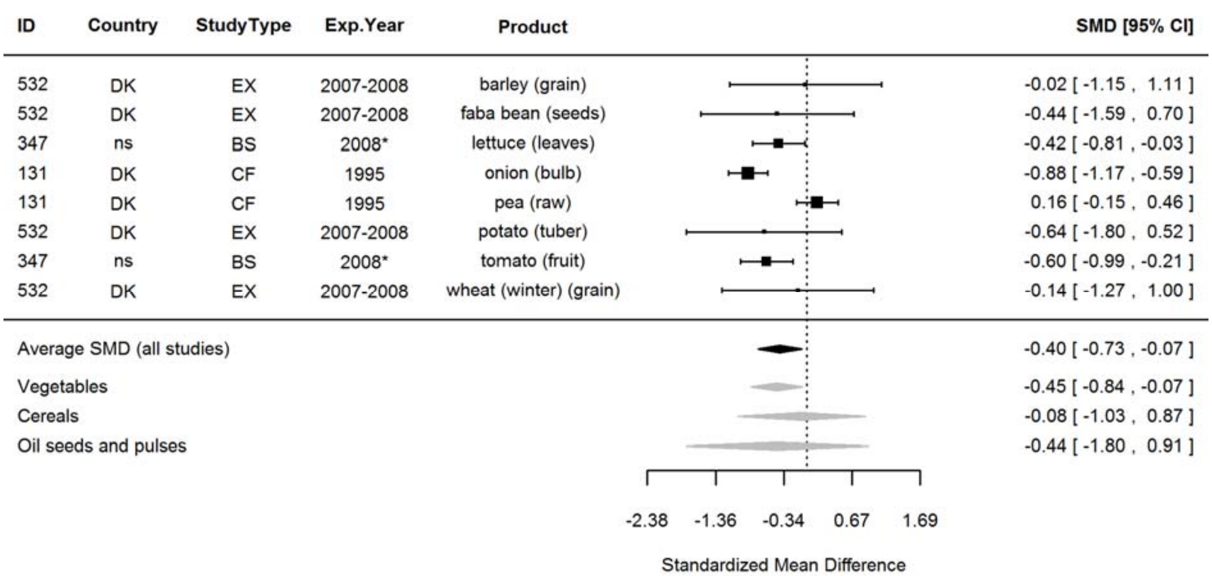


Figure 28. Forest plot showing the results of the comparison of strontium (Sr) between organic and conventional plant foods using standardised mean differences (SMDs) with 95% confidence intervals (CI), for studies included in standard weighted meta-analysis. The estimated average SMD for all studies and SMDs for different product groups are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic foods. ID, Paper unique identification number (see Table 2 for references). *No information about the experimental year (estimated as publication year - 2).

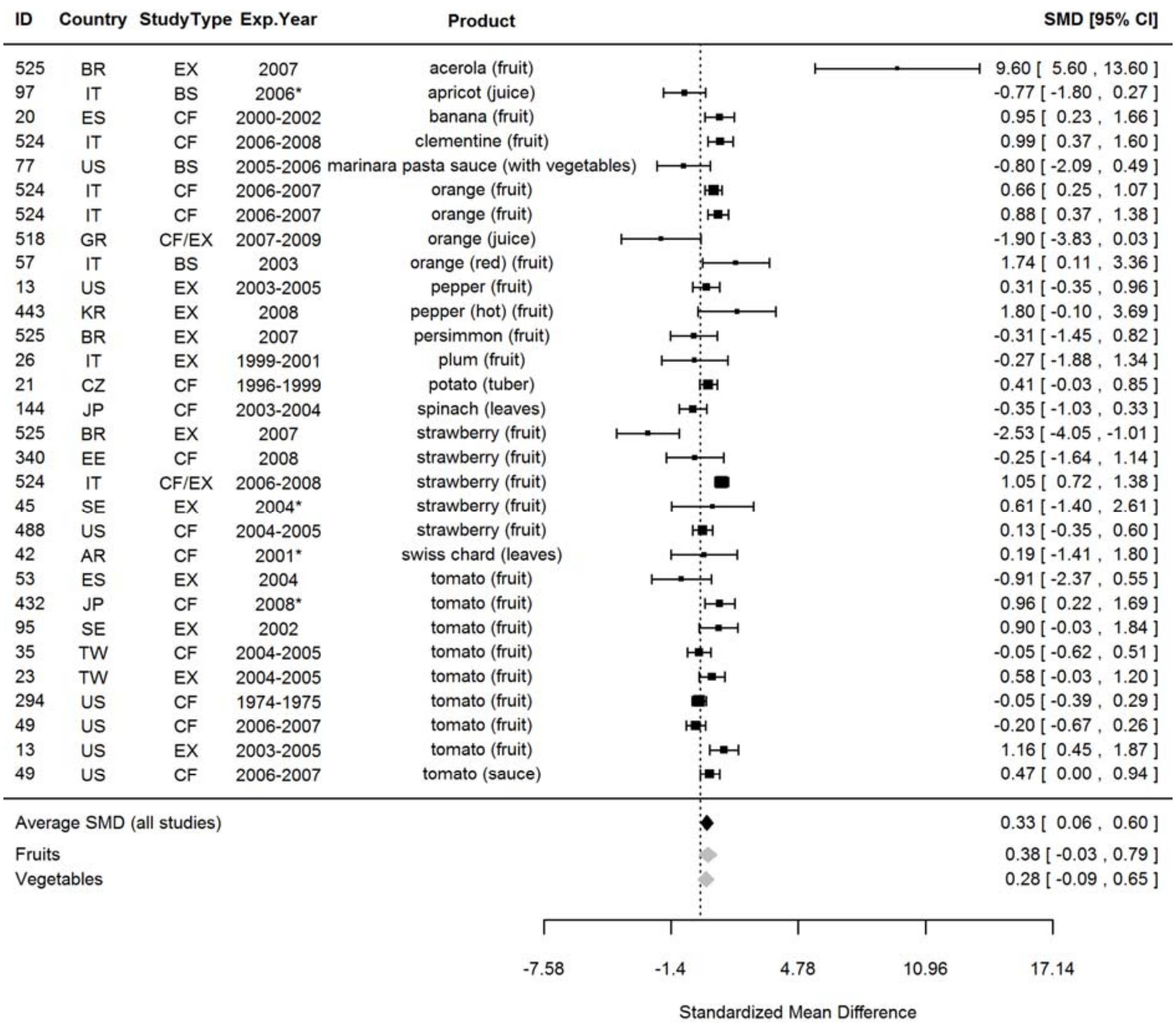


Figure 29. Forest plot showing the results of the comparison of ascorbic acid between organic and conventional plant foods using standardised mean differences (SMDs) with 95% confidence intervals (CI), for studies included in standard weighted meta-analysis. The estimated average SMD for all studies and SMDs for different product groups are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic foods. ID, Paper unique identification number (see Table 2 for references). *No information about the experimental year (estimated as publication year - 2).

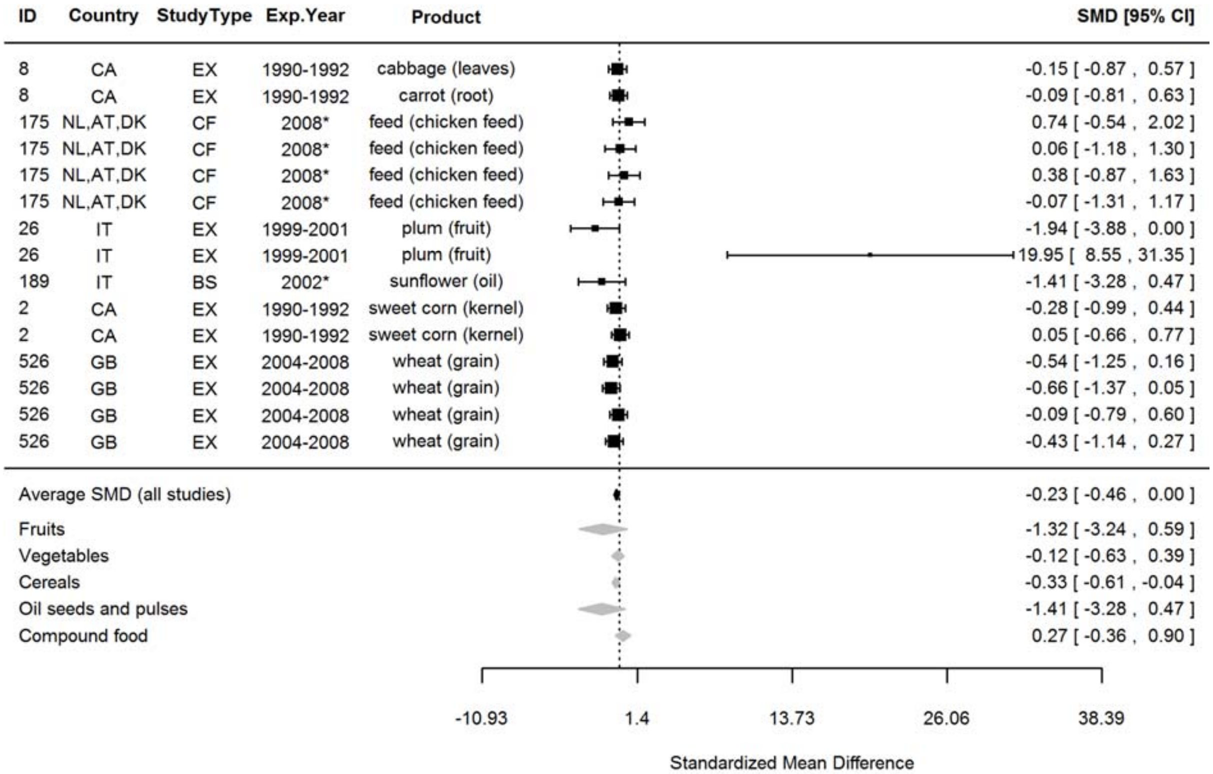


Figure 30. Forest plot showing the results of the comparison of vitamin E between organic and conventional plant foods using standardised mean differences (SMDs) with 95% confidence intervals (CI), for studies included in standard weighted meta-analysis. The estimated average SMD for all studies and SMDs for different product groups are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic foods. ID, Paper unique identification number (see Table 2 for references). *No information about the experimental year (estimated as publication year - 2).

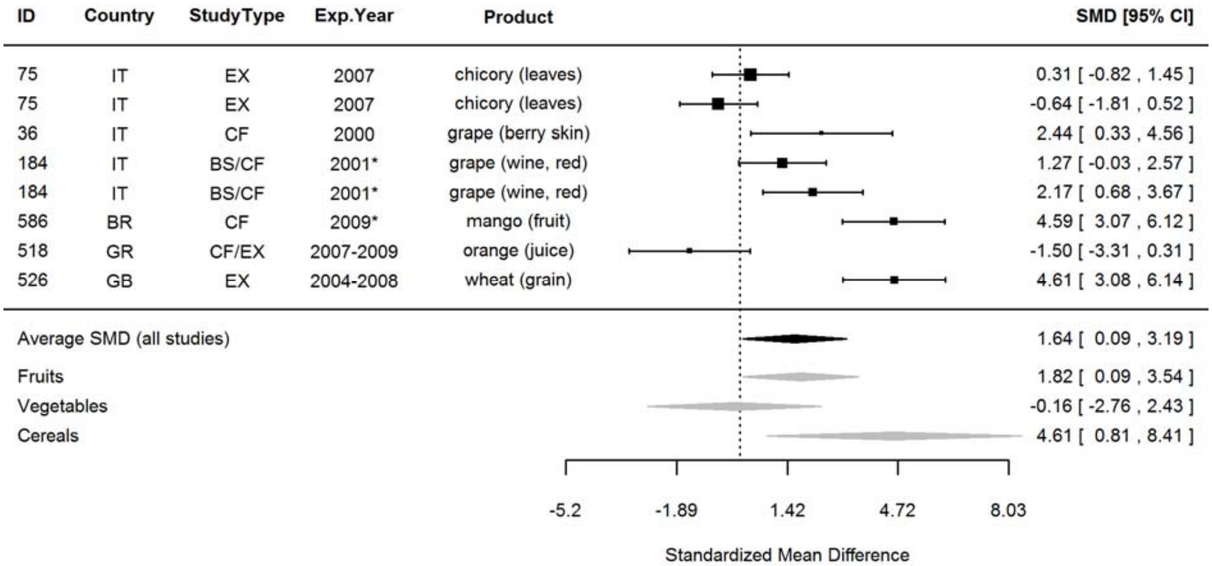


Figure 31. Forest plot showing the results of the comparison of flavonoids (total) between organic and conventional plant foods using standardised mean differences (SMDs) with 95% confidence intervals (CI), for studies included in standard weighted meta-analysis. The estimated average SMD for all studies and SMDs for different product groups are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic foods. ID, Paper unique identification number (see Table 2 for references). *No information about the experimental year (estimated as publication year - 2).

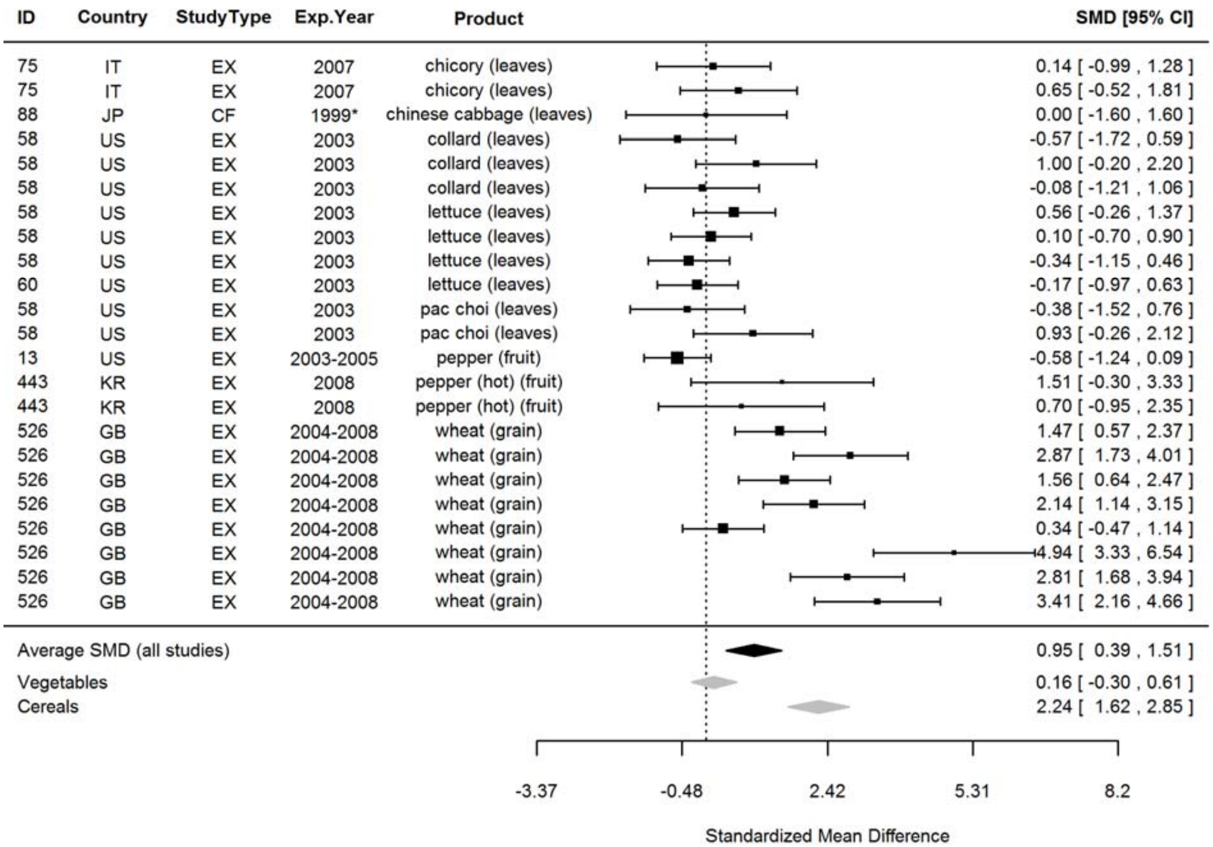


Figure 32. Forest plot showing the results of the comparison of flavones between organic and conventional plant foods using standardised mean differences (SMDs) with 95% confidence intervals (CI), for studies included in standard weighted meta-analysis. The estimated average SMD for all studies and SMDs for different product groups are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic foods. ID, Paper unique identification number (see Table 2 for references). *No information about the experimental year (estimated as publication year - 2).

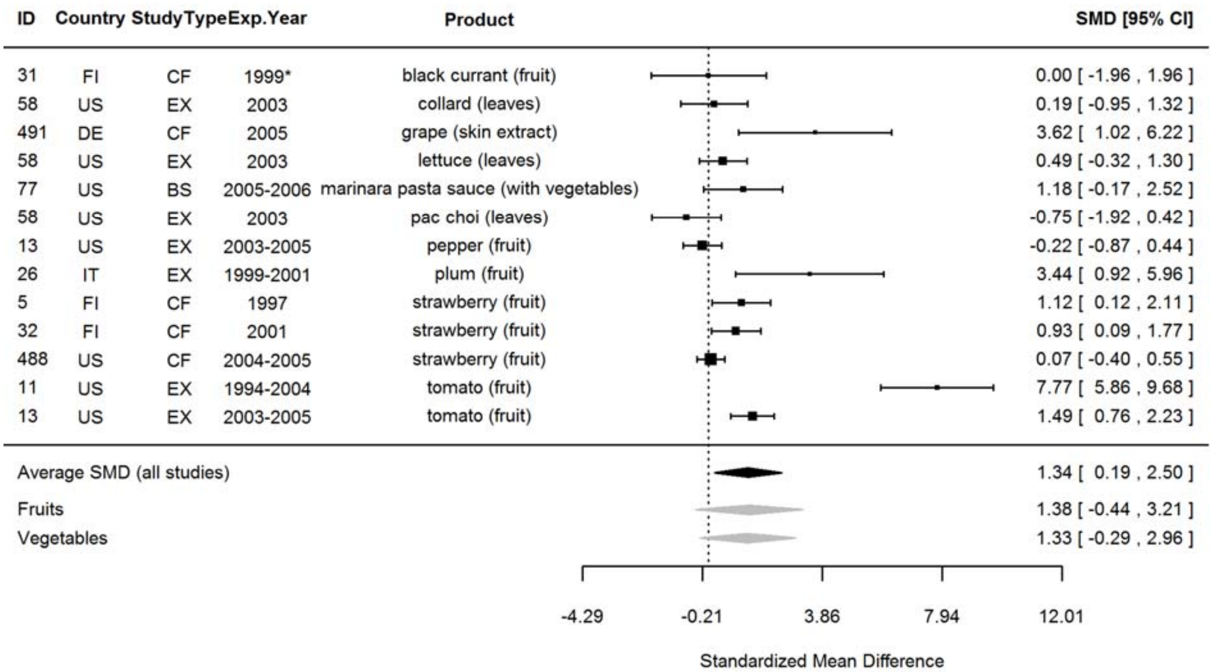


Figure 33. Forest plot showing the results of the comparison of kaempferol between organic and conventional plant foods using standardised mean differences (SMDs) with 95% confidence intervals (CI), for studies included in standard weighted meta-analysis. The estimated average SMD for all studies and SMDs for different product groups are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic foods. ID, Paper unique identification number (see Table 2 for references). *No information about the experimental year (estimated as publication year - 2).

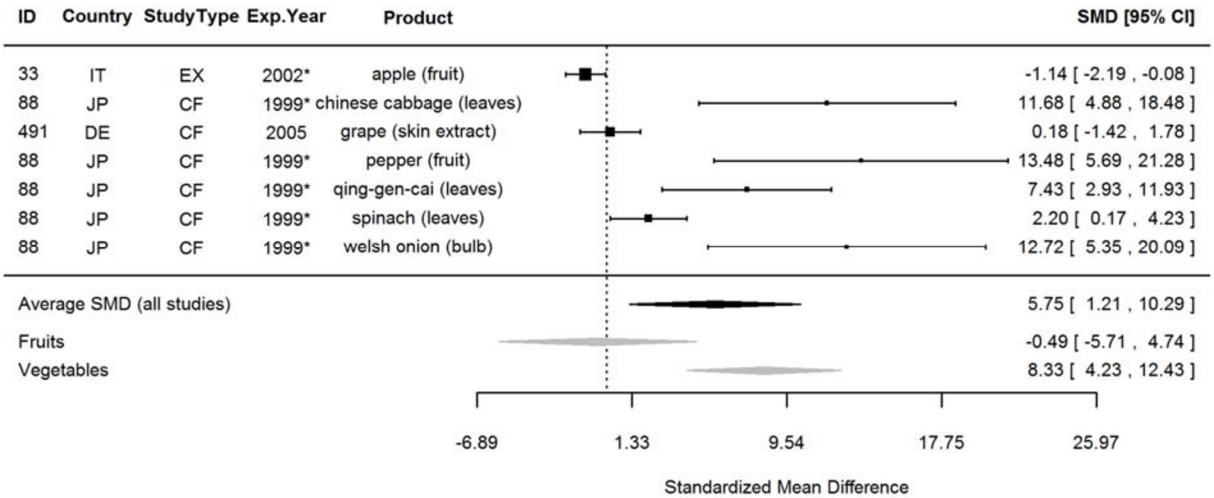


Figure 34. Forest plot showing the results of the comparison of quercetin 3-rhamnoside between organic and conventional plant foods using standardised mean differences (SMDs) with 95% confidence intervals (CI), for studies included in standard weighted meta-analysis. The estimated average SMD for all studies and SMDs for different product groups are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic foods. ID, Paper unique identification number (see Table 2 for references). *No information about the experimental year (estimated as publication year - 2).

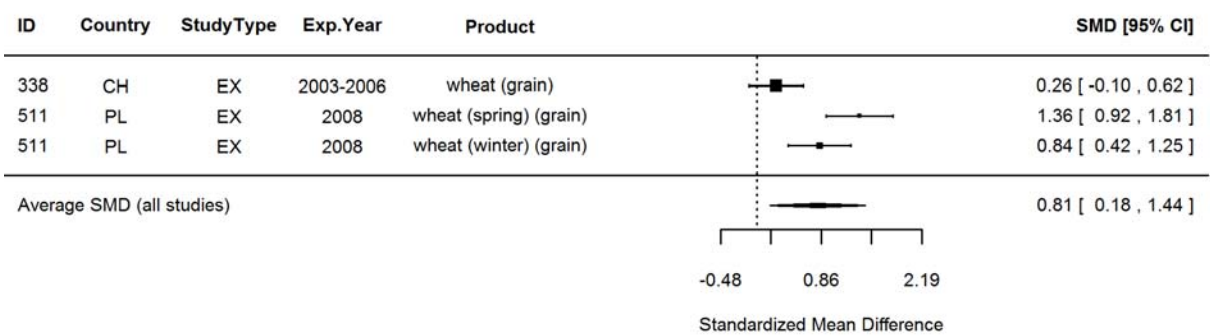


Figure 35. Forest plot showing the results of the comparison of phenolic acids (total) between organic and conventional plant foods using standardised mean differences (SMDs) with 95% confidence intervals (CI), for studies included in standard weighted meta-analysis. The estimated average SMD for all studies is indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic foods. ID, Paper unique identification number (see Table 2 for references).

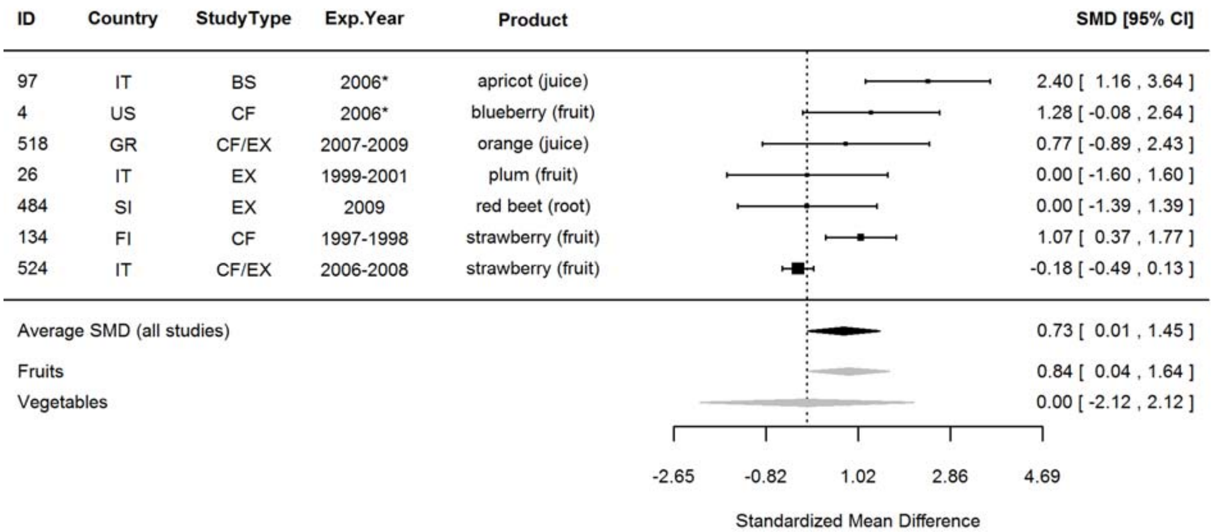


Figure 36. Forest plot showing the results of the comparison of malic acid between organic and conventional plant foods using standardised mean differences (SMDs) with 95% confidence intervals (CI), for studies included in standard weighted meta-analysis. The estimated average SMD for all studies and SMDs for different product groups are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic foods. ID, Paper unique identification number (see Table 2 for references). *No information about the experimental year (estimated as publication year - 2).

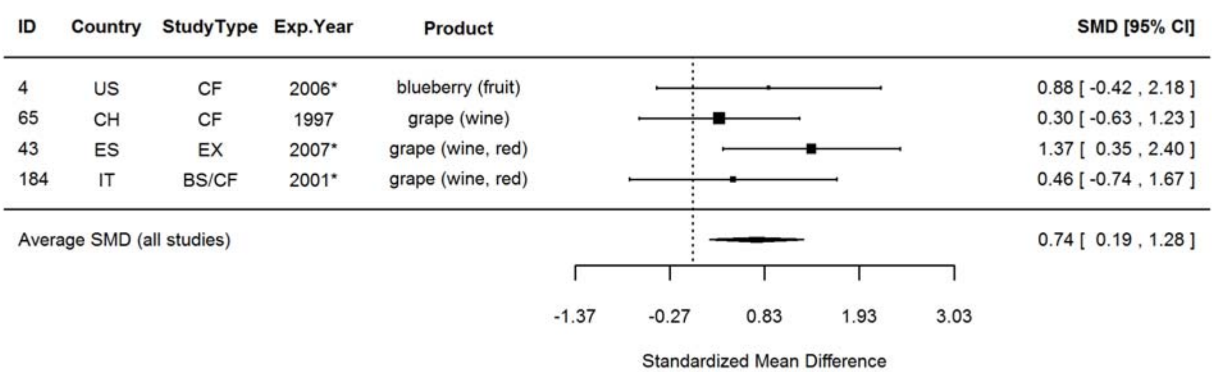


Figure 37. Forest plot showing the results of the comparison of stilbenes between organic and conventional plant foods using standardised mean differences (SMDs) with 95% confidence intervals (CI), for studies included in standard weighted meta-analysis. The estimated average SMD for all studies is indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic foods. ID, Paper unique identification number (see Table 2 for references). *No information about the experimental year (estimated as publication year - 2).

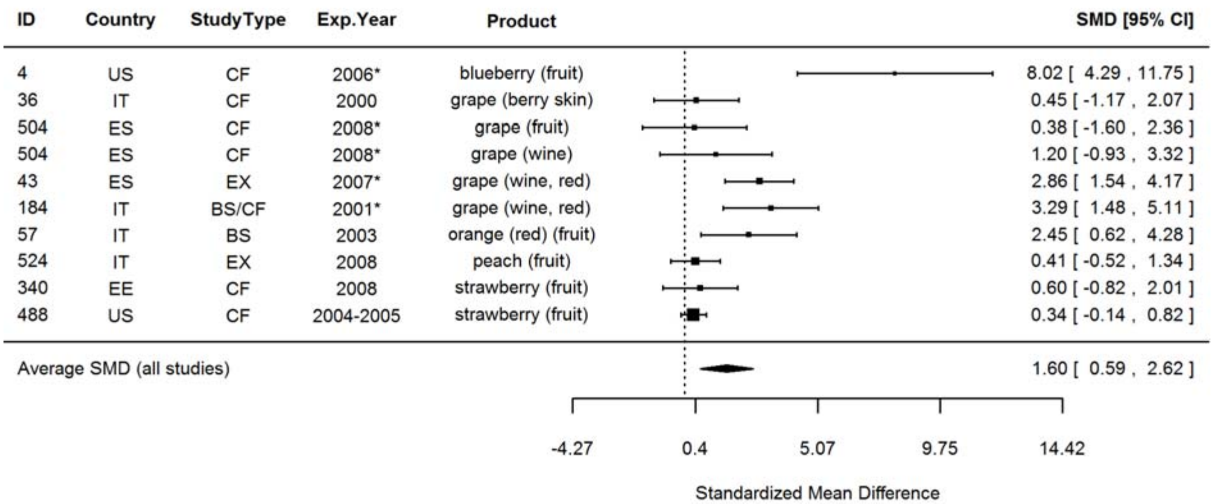


Figure 38. Forest plot showing the results of the comparison of other non-defense compounds (total) between organic and conventional plant foods using standardised mean differences (SMDs) with 95% confidence intervals (CI), for studies included in standard weighted meta-analysis. The estimated average SMD for all studies is indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic foods. ID, Paper unique identification number (see Table 2 for references). *No information about the experimental year (estimated as publication year - 2).

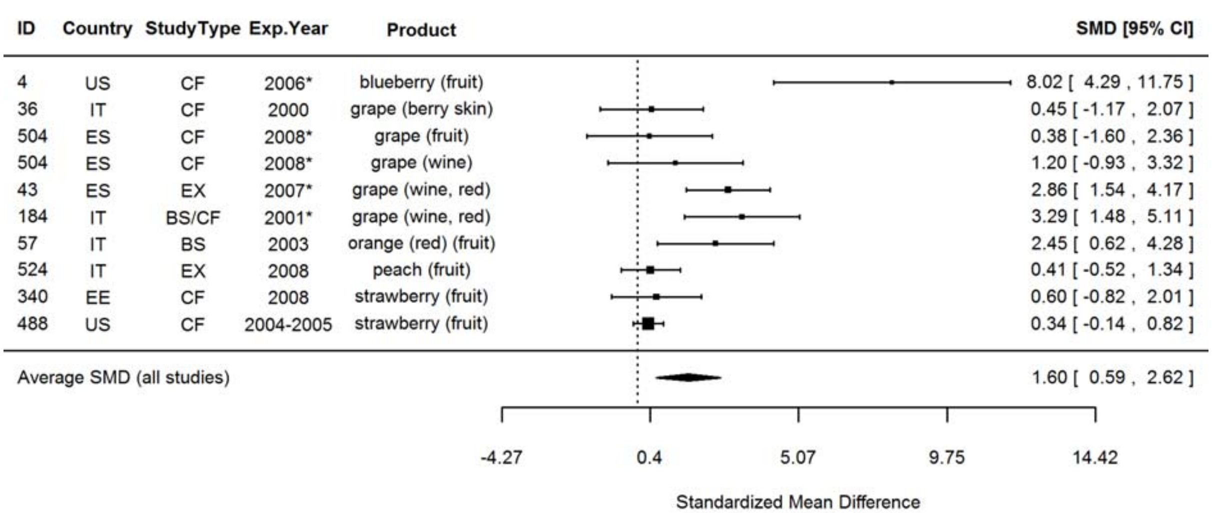


Figure 39. Forest plot showing the results of the comparison of anthocyanins (total) between organic and conventional plant foods using standardised mean differences (SMDs) with 95% confidence intervals (CI), for studies included in standard weighted meta-analysis. The estimated average SMD for all studies is indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic foods. ID, Paper unique identification number (see Table 2 for references). *No information about the experimental year (estimated as publication year - 2).

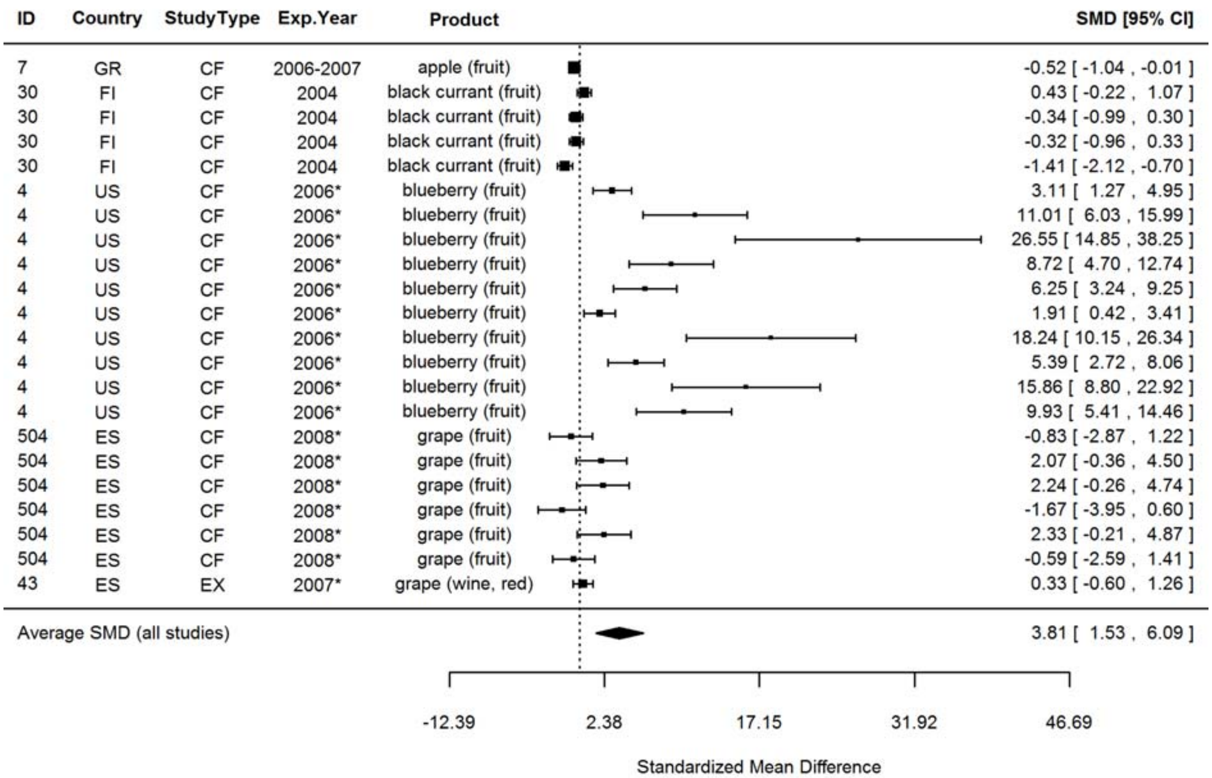
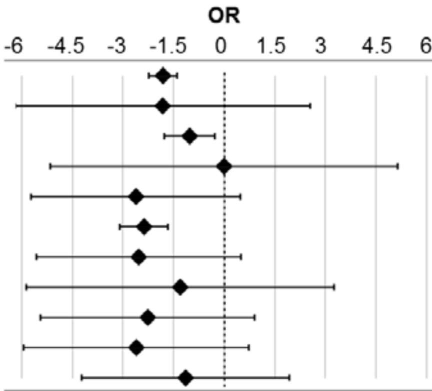


Figure 40. Forest plot showing the results of the comparison of anthocyanins between organic and conventional plant foods using standardised mean differences (SMDs) with 95% confidence intervals (CI), for studies included in standard weighted meta-analysis. The estimated average SMD for all studies is indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic foods. ID, Paper unique identification number (see Table 2 for references). *No information about the experimental year (estimated as publication year - 2).



			% positive samples			
			ORG		CONV	
ID	***n***	***P****	**Mean**	**95% CI**	**Mean**	**95% CI**
ALL	66	<0.001	10.55	6.74, 14.36	46.35	37.96, 54.75
452	1	0.417	0.00	-	20.00	-
460	33	0.010	2.09	-0.90, 5.07	30.62	18.73, 42.50
494	1	1.000	0.00	-	0.00	-
548	1	0.103	2.63	-	26.96	-
619	25	<0.001	22.34	15.83, 28.85	70.88	62.79, 78.97
620	1	0.105	9.58	-	57.17	-
621	1	0.579	0.00	-	20.00	-
622	1	0.168	4.94	-	33.28	-
623	1	0.131	40.00	-	90.00	-
624	1	0.474	11.86	-	29.57	-

Figure 41. Results of the standard weighted meta-analysis comparing odds ratios with 95% confidence intervals for the frequency of pesticide residues in organic and conventional crops. A mixed-effect model with publication as moderator was used. OR, odds ratio for each product group (error bars indicate 95% confidence intervals); ORG, organic samples; CONV, conventional samples; *n*, number of data points included in meta-analyses. **P* value <0.05 indicates a significant difference between ORG and CONV.

Table 12. Results of the standard unweighted and weighted meta-analysis for parameters where none of the 8 meta-analysis protocols indentified significant effects.

	Unweighted meta-analysis			Weighted meta-analysis				
Parameter	***n***	**Ln ratio***	***P*†**	***n***	**SMD**	**95% CI**	***P*†**	**Heterogeneity‡**
Acidity (total)	20	4.57	0.375	7	-0.04	-0.37, 0.30	0.835	No (0%)
Acidity (volatile)	4	4.75	0.254	3	-0.54	-2.03, 0.94	0.472	Yes (66%)
Acids (total)	5	4.55	0.402	3	-1.46	-6.46, 3.54	0.568	Yes (92%)
Antioxidant activity (DPPH)	46	4.62	0.391	23	0.79	-0.95, 2.53	0.373	Yes (94%)
Polyphenoloxidase (PPO) activity (towards caffeic acid)	4	4.70	0.252	4	1.20	-1.70, 4.10	0.417	Yes (93%)
Phenolic compounds	21	4.68	0.183	16	-0.08	-0.46, 0.29	0.663	Yes (50%)
Hydroxycinnamic acids (total)	7	4.49	0.173	4	-1.03	-2.78, 0.72	0.249	Yes (87%)
Caffeic acid	15	4.65	0.335	8	0.54	-0.53, 1.61	0.326	Yes (73%)
p-coumaric acid (pCA)	11	4.67	0.365	5	0.21	-2.37, 2.78	0.875	Yes (99%)
Ferulic acid	8	4.79	0.243	4	0.39	-1.93, 2.70	0.743	Yes (97%)
Sinapic acid (SA)	5	4.67	0.442	3	-0.74	-1.74, 0.27	0.153	Yes (88%)
5-o-Caffeoylquinic acid (5-CQA)	4	4.77	0.188	3	0.35	-0.49, 1.18	0.412	Yes (62%)
Ellagic acid	5	4.81	0.063	4	1.93	-1.31, 5.18	0.243	Yes (97%)
Gallic acid	8	4.83	0.070	5	0.07	-0.52, 0.67	0.809	Yes (51%)
Salicylic acid	5	5.54	0.094	4	1.06	-0.19, 2.32	0.095	Yes (61%)
Apigenin	6	4.63	0.476	5	0.14	-0.47, 0.76	0.652	No (23%)
Luteolin	6	4.96	0.091	5	0.28	-0.39, 0.95	0.413	Yes (54%)
Myricetin 3-o-glucoside	4	4.52	0.372	3	0.15	-1.79, 2.09	0.879	Yes (87%)
Quercetin 3-galactoside	6	5.11	0.145	3	1.12	-0.54, 2.78	0.184	Yes (87%)
Quercetin 3-glucoside	10	5.01	0.105	5	0.31	-0.48, 1.10	0.446	Yes (58%)
Quercetin malonylglucoside	3	4.69	0.372	3	0.20	-0.34, 0.75	0.462	No (15%)

n, number of data points included in the comparison; SMD, standardised mean difference of fixed-effect model.*Ln ratio = Ln(ORG/CONV × 100%); †*P* value <0.05 indicates significance of the difference in composition between organic and conventional crop/crop based food; ‡Heterogeneity and the I^2 Statistic.

Table 12 cont. Results of the standard unweighted and weighted meta-analysis for parameters where none of the 8 meta-analysis protocols indentified significant effects.

	Unweighted meta-analysis			Weighted meta-analysis				
Parameter	***n***	**Ln ratio***	***P*†**	***n***	**SMD**	**95% CI**	***P*†**	**Heterogeneity‡**
Flavanols (total)	7	4.59	0.437	3	-0.58	-2.05, 0.89	0.441	Yes (86%)
Flavanols	28	4.61	0.494	15	-0.15	-0.91, 0.61	0.693	Yes (94%)
Naringenin	6	4.67	0.384	4	1.41	-1.54, 4.35	0.349	Yes (96%)
Naringenin (R-enantomer)	5	4.67	0.344	5	1.55	-2.17, 5.28	0.413	Yes (96%)
Chalcones	21	4.57	0.500	13	0.28	-0.26, 0.83	0.302	Yes (87%)
Dihydrochalcones	4	4.64	0.305	3	-0.08	-1.00, 0.84	0.866	Yes (67%)
Phloridzin	7	4.79	0.200	4	0.09	-1.16, 1.35	0.883	Yes (94%)
Procyanidins	16	4.45	0.144	5	-2.04	-4.43, 0.36	0.096	Yes (97%)
Glucosinolates	30	4.59	0.437	18	0.21	-0.31, 0.74	0.427	Yes (93%)
Glucoraphanin	4	4.69	0.193	3	0.20	-0.28, 0.68	0.403	Yes (39%)
Alpha-carotene	6	4.74	0.189	4	0.14	-0.83, 1.12	0.773	Yes (77%)
Lycopene	27	4.68	0.338	14	0.30	-0.18, 0.78	0.217	Yes (79%)
Beta-cryptoxanthin	6	4.60	0.488	3	2.08	-3.46, 7.61	0.462	Yes (98%)
Zeaxanthin	14	4.29	0.164	11	-0.05	-1.09, 0.99	0.927	Yes (94%)
Dehydroascorbic acid	7	4.16	0.134	6	-0.60	-1.71, 0.50	0.282	Yes (92%)
Alpha-tocopherol	12	4.50	0.240	7	-0.28	-0.62, 0.05	0.095	No (0%)
Gamma-tocopherol	6	4.61	0.467	3	5.39	-6.24, 17.03	0.363	Yes (99%)
Vitamin B	13	4.76	0.072	9	0.54	-0.22, 1.30	0.161	Yes (73%)
Vitamin B_1	4	4.76	0.252	3	0.45	-0.39, 1.28	0.296	Yes (50%)
Glucose	19	4.65	0.263	11	0.77	-0.53, 2.08	0.243	Yes (95%)
Sucrose	18	4.72	0.091	11	0.06	-0.24, 0.37	0.685	Yes (31%)
Fibre (soluble)	4	4.56	0.061	4	-0.55	-1.10, 0.01	0.054	No (0%)
Fibre (insoluble)	5	4.60	0.443	5	-0.26	-0.97, 0.44	0.466	Yes (57%)

n, number of data points included in the comparison; SMD, standardised mean difference of fixed-effect model.*Ln ratio = Ln(ORG/CONV × 100%); †*P* value <0.05 indicates significance of the difference in composition between organic and conventional crop/crop based food; ‡Heterogeneity and the I^2 Statistic.

Table 12 cont. Results of the standard unweighted and weighted meta-analysis for parameters where none of the 8 meta-analysis protocols indentified significant effects.

	Unweighted meta-analysis			Weighted meta-analysis				
Parameter	***n***	**Ln ratio***	***P*†**	***n***	**SMD**	**95% CI**	***P*†**	**Heterogeneity‡**
Asparagine (ASP)	14	4.62	0.374	5	-0.39	-2.43, 1.65	0.709	Yes (92%)
Aspartic acid	10	4.57	0.240	5	-0.38	-1.40, 0.64	0.465	Yes (85%)
Glutamine (Gln)	11	4.64	0.407	4	-0.71	-1.75, 0.32	0.177	Yes (86%)
Glycine (GLY)	17	4.62	0.383	5	-0.57	-2.51, 1.37	0.566	Yes (92%)
Serine (SER)	18	4.59	0.280	6	-0.63	-1.64, 0.38	0.220	Yes (81%)
Energy	6	4.63	0.286	4	1.44	-1.70, 4.58	0.370	Yes (96%)
Fat	23	4.63	0.235	10	0.39	-0.67, 1.46	0.472	Yes (92%)
Fatty acids	94	4.55	0.115	60	0.00	-0.22, 0.22	0.998	Yes (49%)
Saturated fatty acids	37	4.61	0.484	24	0.06	-0.23, 0.35	0.681	No (23%)
Saturated fatty acids (total)	6	4.71	0.157	5	0.72	-0.71, 2.15	0.323	Yes (81%)
16.0 fatty acid (palmitic acid)	12	4.63	0.356	7	0.07	-0.54, 0.69	0.817	Yes (43%)
18.0 fatty acid (stearic acid)	12	4.70	0.291	8	-0.08	-0.96, 0.81	0.867	Yes (72%)
20.0 fatty acid (arachidic acid)	7	4.58	0.358	5	0.00	-0.46, 0.46	0.991	No (0%)
18.1 fatty acid (oleic acid)	9	4.59	0.462	7	-0.07	-0.47, 0.33	0.725	No (0%)
Polyunsaturated fatty acids	32	4.66	0.193	23	0.10	-0.33, 0.54	0.639	Yes (68%)
18.2 fatty acid (linoleic acid)	11	4.56	0.319	8	-0.11	-0.91, 0.69	0.782	Yes (67%)
18.3 fatty acid (linolenic acid)	9	4.74	0.139	5	0.17	-1.00, 1.33	0.779	Yes (79%)

n, number of data points included in the comparison; SMD, standardised mean difference of fixed-effect model.*Ln ratio = Ln(ORG/CONV × 100%); †*P* value <0.05 indicates significance of the difference in composition between organic and conventional crop/crop based food; ‡Heterogeneity and the I^2 Statistic.

Table 12 cont. Results of the standard unweighted and weighted meta-analysis for parameters where none of the 8 meta-analysis protocols indentified significant effects.

	Unweighted meta-analysis			Weighted meta-analysis				
Parameter	***n***	**Ln ratio***	***P*†**	***n***	**SMD**	**95% CI**	***P*†**	**Heterogeneity‡**
Aluminium (Al)	10	4.64	0.336	4	-0.02	-0.59, 0.55	0.953	Yes (83%)
Arsenic (As)	3	4.52	0.374	3	-40.77	-108.34, 26.8	0.237	Yes (100%)
Barium (Ba)	13	4.53	0.121	6	-0.05	-0.24, 0.14	0.629	No (0%)
Boron (B)	25	4.66	0.314	11	1.20	-1.72, 4.12	0.422	Yes (100%)
Bromine (Br)	6	4.97	0.222	5	0.91	-0.72, 2.54	0.274	Yes (85%)
Calcium (Ca)	110	4.62	0.236	41	0.11	-0.14, 0.35	0.390	Yes (83%)
Carbon (C)	8	4.60	0.395	5	-0.08	-0.56, 0.40	0.756	No (0%)
Cerium (Ce)	3	4.28	0.374	3	-0.57	-1.22, 0.09	0.091	Yes (27%)
Chloride (Cl)	6	4.48	0.062	5	-0.42	-1.10, 0.27	0.231	No (0%)
Cobalt (Co)	22	4.60	0.505	10	-0.01	-0.74, 0.72	0.978	Yes (93%)
Copper (Cu)	74	4.59	0.379	28	-0.07	-0.40, 0.26	0.672	Yes (86%)
Iron (Fe)	79	4.61	0.465	30	-0.18	-0.59, 0.22	0.379	Yes (93%)
Lanthanum (La)	3	4.73	0.369	3	0.28	-0.72, 1.27	0.586	Yes (96%)
Lead (Pb)	34	4.58	0.432	16	0.38	-7.42, 8.18	0.924	Yes (100%)
Rhenium (Re)	3	4.05	0.375	3	0.28	-2.50, 3.06	0.843	Yes (99%)
Sodium (Na)	58	4.65	0.130	21	0.18	-0.27, 0.62	0.443	Yes (91%)
Sulphur (S)	29	4.59	0.364	14	-0.46	-1.16, 0.24	0.197	Yes (91%)
Thallium (Tl)	4	4.68	0.250	4	0.62	-1.28, 2.53	0.519	Yes (98%)
Tin (Sn)	3	4.40	0.252	3	-11.43	-29.58, 6.73	0.217	Yes (100%)
Wolfram (W)	5	4.97	0.092	5	0.27	-0.03, 0.57	0.079	No (0%)

n, number of data points included in the comparison; SMD, standardised mean difference of fixed-effect model.*Ln ratio = Ln(ORG/CONV × 100%); †*P* value <0.05 indicates significance of the difference in composition between organic and conventional crop/crop based food; ‡Heterogeneity and the I^2 Statistic.

Table 13. Results of the statistical test for publication bias reported in Fig. 3 of the main paper.

Parameter	Trim and fill test*		No of missing *n* in Rosenthal's Fail-safe N test†	No of missing *n* in Orwin's Fail-safe N test‡	*P* from Egger's test for funnel plot asymetry§
	No of missing *n*	funnel plot side			
Antioxidant activity	0	left	1549	66	0.386
FRAP	2	right	24	5	0.069
ORAC	0	left	21	4	0.003
TEAC	1	left	17	7	0.180
Phenolic compounds (total)	0	left	615	58	<0.001
Flavonoids (total)	0	left	95	8	0.597
Phenolic acids (total)	2	left	45	3	<0.001
Phenolic acids||	0	left	1601	89	<0.001
Chlorogenic acid	0	left	149	14	<0.001
Flavanones||	0	left	457	54	<0.001
Stilbenes	0	left	7	4	0.827
Flavones and flavonols	0	left	23198	134	<0.001
Flavones	0	left	471	23	0.040
Flavonols||	0	left	16927	111	<0.001
Quercetin	5	right	54	17	0.426
Rutin	3	right	170	9	0.668
Kaempferol	0	left	189	13	0.010
Anthocyanins (total)	0	left	134	10	0.004
Anthocyanins	0	left	471	22	<0.001
Carotenoids (total)	0	left	93	4	<0.001
Carotenoids||	0	left	1616	82	0.246

*The method used to estimate the number of data points missing from a meta-analysis due to the suppression of the most extreme results on one side of the funnel plot; †Number of missing data points that need to be retrived and incorporate in the meta-analysis before the results become nonsignificant; ‡Number of missing data point that need to be retrived and incorporate in the meta-analysis before the estimated value of the standardised mean (SMD) difference reaches a specified level (here SMD/2); §*P* value <0.05 indicates funnel plot asymmetry; ||Outlying data-pairs for which the mean percentage difference between organic and conventional samples was over 50 times higher than the mean value including outliers were removed.

Table 13 cont. Results of the statistical test for publication bias reported in Fig. 3 of the main paper.

Parameter	Trim and fill test*		No of missing *n* in Rosenthal's Fail-safe N test†	No of missing *n* in Orwin's Fail-safe N test‡	*P* from Egger's test for funnel plot asymetry§
	No of missing *n*	funnel plot side			
Xanthophylls||	0	left	1064	33	0.001
Lutein	4	right	83	13	0.603
Ascorbic acid	0	left	307	30	0.745
Vitamin E	1	left	0	15	0.058
Carbohydrates (total)	0	left	392	16	0.001
Carbohydrates||	0	left	313	53	<0.001
Sugars (reducing)	2	left	0	3	0.287
Protein (total)	0	right	1913	26	<0.001
Amino acids||	26	right	9089	117	0.001
Dry matter||	0	left	212	24	<0.001
Fibre	0	right	41	15	0.012
Nitrogen (N)	0	right	861	35	0.004
Nitrate||	0	right	243	29	0.001
Nitrite	1	right	0	7	0.603
Cadmium (Cd)	0	right	996	25	<0.001

*The method used to estimate the number of data points missing from a meta-analysis due to the suppression of the most extreme results on one side of the funnel plot; †Number of missing data points that need to be retrived and incorporate in the meta-analysis before the results become nonsignificant; ‡Number of missing data point that need to be retrived and incorporate in the meta-analysis before the estimated value of the standardised mean (SMD) difference reaches a specified level (here SMD/2); §*P* value <0.05 indicates funnel plot asymmetry; ||Outlying data-pairs for which the mean percentage difference between organic and conventional samples was over 50 times higher than the mean value including outliers were removed.