Higher PUFA and omega-3 PUFA, CLA, α-tocopherol and iron, but lower iodine and selenium concentrations in organic milk: A Systematic Literature Review and Meta- and Redundancy Analyses

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# 1. INFORMATION ABOUT PAPERS INCLUDED IN THE SYSTEMATIC REVIEW AND THE META-ANALYSIS

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| **Table S1.** List of papers included in the systematic review and the meta-analysis. | | |
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| **Table S1 cont.** List of papers included in the systematic review and the meta-analysis. | | |
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| **Table S1 cont.** List of papers included in the systematic review and the meta-analysis. | | |
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| **Table S1 cont.** List of papers included in the systematic review and the meta-analysis. | | |
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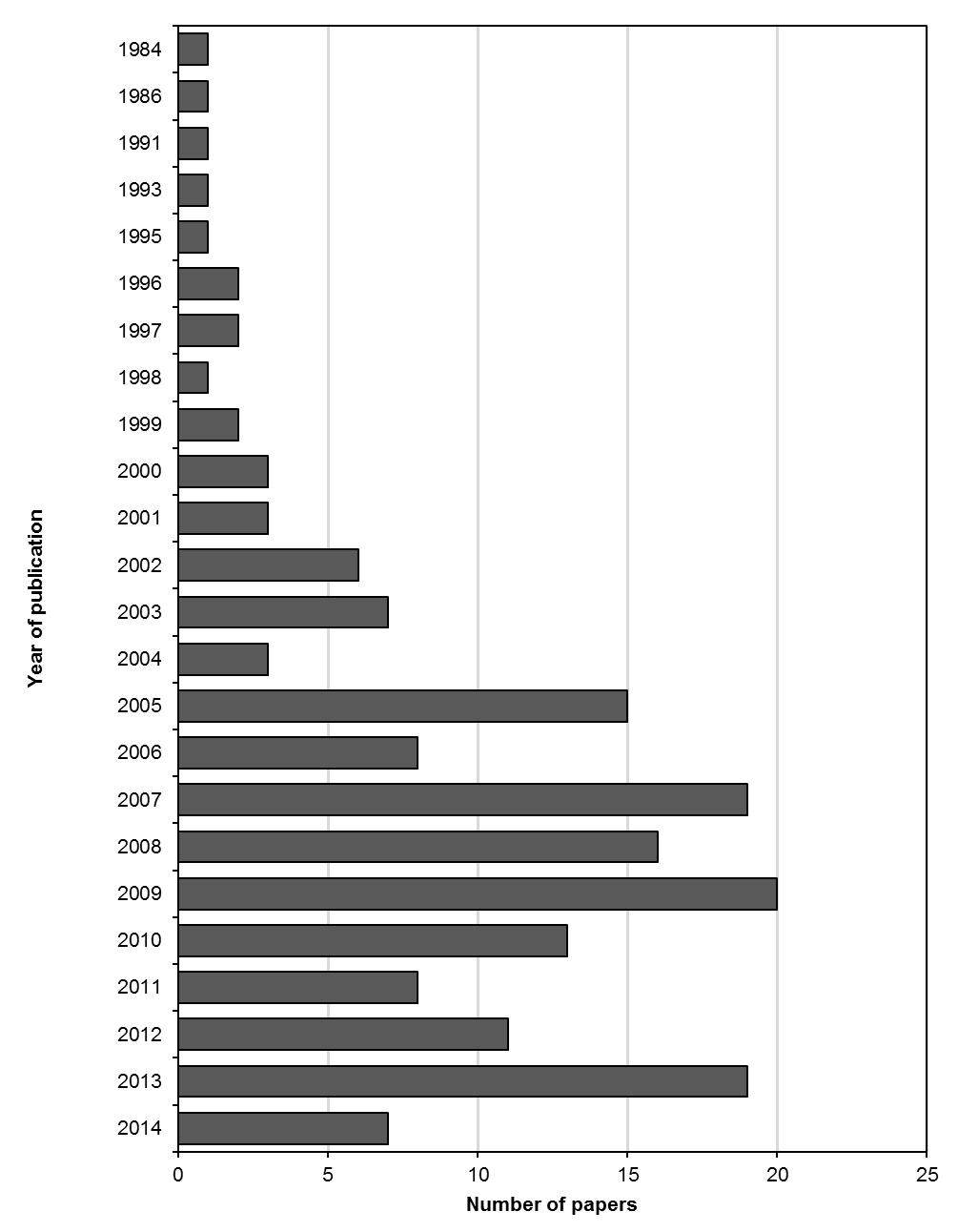
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| **Table S1 cont.** List of papers included in the systematic review and the meta-analysis. | | |
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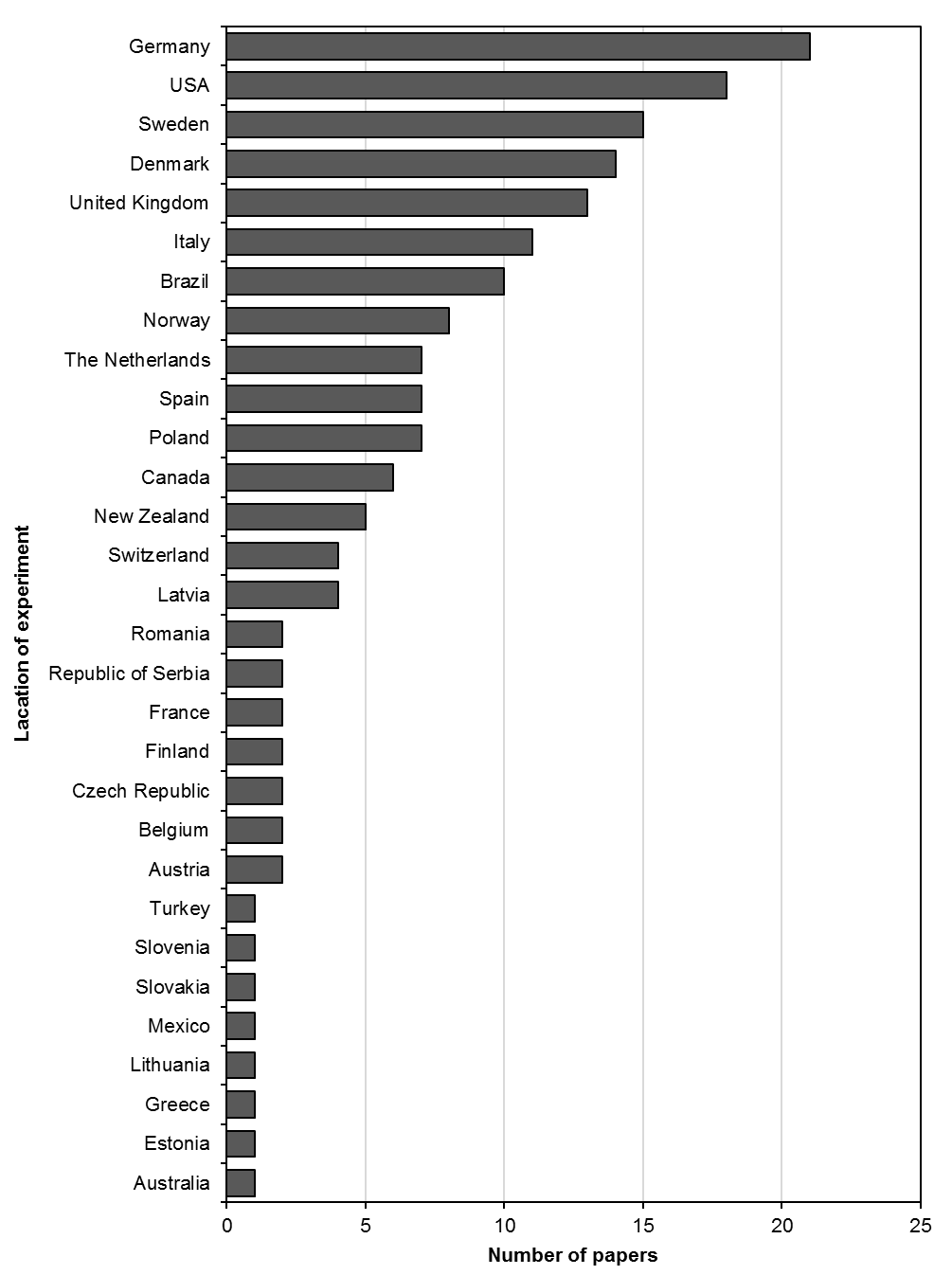
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| **Table S1 cont.** List of papers included in the systematic review and the meta-analysis. | | |
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| ID, Paper unique identification number. \*Paper included in standard meta-analysis; †Paper with data on goat, sheep or buffalo milk or dairy products; ‡Paper with data on bovine dairy products. | | |

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| **Table S1 cont.** List of papers included in the systematic review and the meta-analysis. | | |
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## **Figure S1.** Number of papers included in the systematic review and the meta-analysis by year of publication.

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## **Figure S2.** Number of papers included in the systematic review and the meta-analysis by location of the experiment (country).

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| **Table S2.** Study type, location, product and animal species information for studies included in the systematic review and the meta-analysis. | | | | |
| **ID** | **ST** | **Location** | **Product** | **Animal species** |
| 69 | CF | Australia | milk | cow |
| 125 | BS | Italy | milk | cow |
| 153 | BS | Germany | milk | cow |
| 155 | BS | Italy | milk | cow |
|  |  |  | cheese (crescenza, fontina, mozzarella, parmigiano, ricotta)\* | cow |
|  |  |  | butter\* | cow |
|  |  |  | dairy products (milk, butter, cheeses)\* | cow |
|  | CF | Italy | milk | buffalo\* |
|  |  |  | cheese (mozzarella) | buffalo\* |
| 157 | CF | United Kingdom | milk | cow |
| 158 | CF | United Kingdom | milk | cow |
| 160 | CF | Switzerland | milk | cow |
| 161 | CF | United Kingdom | milk | cow |
| 162 | CF | United Kingdom | milk | cow |
| 169 | CF | Denmark | milk | cow |
| 174 | BS | Finland | milk | cow |
| 176 | CF | Germany | milk | cow |
| 178 | CF | Germany | milk | cow |
| 190 | BS | Italy | curd\* | cow |
|  |  |  | cheese\* | cow |
|  |  |  | milk | cow |
| 191 | CF | Brazil | milk | cow |
| 192 | CF | Denmark | milk | cow |
| 194 | CF | Sweden | milk | cow |
| 196 | BS | USA | milk | cow |
| 205 | CF | Switzerland | milk | cow |
| 207 | CF | Germany | milk | cow |
| 216 | CF | Sweden | milk | cow |
| 217 | BS | Germany | cheese (crescenza, fontina, mozzarella, parmigiano, ricotta)\* | cow |
| 229 | CF | France | milk | cow |
| 235 | CF | Italy | milk | cow |
| ID, Paper unique identification number (see Table S1 for references); ST, Study type (CF – Comparison of Farms, BS – Basket Study, EX – Controlled Experiment). \*Data for products other than milk and animals other than cow was described in the main paper and summarised in Figure S35, Table S14 and S15. | | | | |

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| **Table S2 cont.** Study type, location, product and animal species information for studies included in the systematic review and the meta-analysis. | | | | |
| **ID** | **ST** | **Location** | **Product** | **Animal species** |
| 257 | CF | Latvia | milk | cow |
| 266 | CF | Denmark | milk | cow |
| 293 | BS | Germany | milk | cow |
| 309 | CF | The Netherlands | milk | cow |
| 322 | CF | Italy | milk | cow |
|  |  | Slovenia | milk | cow |
| 329 | CF | Brazil | milk | cow |
| 350 | BS | Germany | milk | cow |
|  | CF | Germany | milk | cow |
| 352 | CF | The Netherlands | milk | cow |
| 353 | CF | The Netherlands | milk | cow |
| 356 | CF | Switzerland | milk | cow |
| 366 | BS | USA | milk | cow |
| 367 | CF | Germany | milk | cow |
| 369 | BS | United Kingdom | milk | cow |
| 383 | EX | Germany | milk | cow |
|  | BS | Germany | cheese (crescenza, fontina, mozzarella, parmigiano, ricotta)\* | cow |
|  |  |  | milk | cow |
| 384 | EX | Germany | milk | cow |
| 385 | CF | Greece | milk | sheep\* |
|  |  |  | milk | goat\* |
| 386 | EX | Italy | milk | goat\* |
| 387 | CF | United Kingdom | milk | cow |
|  | BS | United Kingdom | milk | cow |
| 388 | CF | United Kingdom | milk | cow |
| 392 | BS | Denmark | milk | cow |
| 393 | CF | Latvia | milk | cow |
| 394 | CF | Norway | milk | cow |
| 395 | CF | Norway | milk | cow |
| 396 | CF | Canada | milk | cow |
| ID, Paper unique identification number (see Table S1 for references); ST, Study type (CF – Comparison of Farms, BS – Basket Study, EX – Controlled Experiment). \*Data for products other than milk and animals other than cow was described in the main paper and summarised in Figure S35, Table S14 and S15. | | | | |

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| **Table S2 cont.** Study type, location, product and animal species information for studies included in the systematic review and the meta-analysis. | | | | |
| **ID** | **ST** | **Location** | **Product** | **Animal species** |
| 398 | CF | Denmark | milk | cow |
| 399 | CF | Denmark | milk | cow |
| 401 | CF | United Kingdom | milk | cow |
| 402 | BS | Germany | milk | cow |
| 403 | EX | Germany | milk | cow |
|  |  |  | cheese\* | cow |
| 404 | BS | Germany | milk | cow |
| 405 | CF | Italy | milk | cow |
| 406 | CF | Italy | cheese (latteria)\* | cow |
|  |  |  | milk | cow |
| 408 | CF | The Netherlands | milk | cow |
| 409 | CF | Germany | milk | cow |
| 410 | BS | Germany | milk | cow |
| 412 | EX | Sweden | milk | cow |
| 413 | CF | Canada | milk | cow |
| 414 | CF | United Kingdom | milk | cow |
| 418 | CF | Lithuania | milk | cow |
| 419 | CF | Italy | milk | cow |
|  |  | Sweden | milk | cow |
| 420 | CF | Sweden | milk | cow |
| 455 | BS | Brazil | milk | cow |
|  |  |  | fermented milk\* | cow |
|  |  |  | yoghurt\* | cow |
| 456 | BS | Spain | milk | sheep\* |
| 457 | CF | Republic of Serbia | milk | cow |
| 458 | EX | Austria | milk | cow |
| 461 | BS | Brazil | milk | cow |
| 464 | CF | Poland | milk | cow |
| 465 | EX | Sweden | milk | cow |
| 467 | CF | Sweden | milk | cow |
| 472 | EX | Poland | milk | cow |
| ID, Paper unique identification number (see Table S1 for references); ST, Study type (CF – Comparison of Farms, BS – Basket Study, EX – Controlled Experiment). \*Data for products other than milk and animals other than cow was described in the main paper and summarised in Figure S35, Table S14 and S15. | | | | |

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| **Table S2 cont.** Study type, location, product and animal species information for studies included in the systematic review and the meta-analysis. | | | | |
| **ID** | **ST** | **Location** | **Product** | **Animal species** |
| 474 | CF | Italy | milk | buffalo\* |
| 481 | CF | Italy | milk | cow |
| 487 | EX | Spain | milk | goat\* |
| 547 | CF | Romania | milk | sheep\* |
| 551 | CF | Sweden | milk | cow |
| 552 | CF | United Kingdom | milk | cow |
| 553 | CF | USA | milk | cow |
| 554 | CF | USA | milk | cow |
| 555 | CF | USA | milk | cow |
| 556 | BS | Italy | cheese (fontina)\* | cow |
|  |  |  | milk | cow |
| 576 | CF | Sweden | milk | cow |
| 577 | CF | Republic of Serbia | milk | cow |
| 588 | CF | Poland | milk | cow |
| 589 | BS | Belgium | milk | cow |
| 590 | CF | Estonia | milk | cow |
| 591 | BS | Brazil | milk | cow |
|  |  |  | fermented milk\* | cow |
|  |  |  | yoghurt\* | cow |
| 592 | BS/CF | Italy | milk | cow |
| 593 | BS | United Kingdom | milk | cow |
| 594 | BS | Spain | milk | cow |
| 595 | BS | Brazil | milk | cow |
|  |  |  | yoghurt\* | cow |
| 596 | CF | Norway | milk | cow |
| 597 | CF | Romania | milk | cow |
| 598 | BS/CF | USA | milk | cow |
| 599 | CF | Sweden | milk | cow |
| 600 | CF | Poland | milk | cow |
| 601 | CF | Germany | milk | cow |
| ID, Paper unique identification number (see Table S1 for references); ST, Study type (CF – Comparison of Farms, BS – Basket Study, EX – Controlled Experiment). \*Data for products other than milk and animals other than cow was described in the main paper and summarised in Figure S35, Table S14 and S15. | | | | |

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| **Table S2 cont.** Study type, location, product and animal species information for studies included in the systematic review and the meta-analysis. | | | | |
| **ID** | **ST** | **Location** | **Product** | **Animal species** |
| 602 | BS | Germany | milk | cow |
| 616 | EX | Italy | milk | sheep\* |
| 617 | BS | Italy | yoghurt | goat\* |
| 618 | CF | Poland | milk | cow |
| 626 | BS | USA | milk | cow |
| 627 | CF | The Netherlands | milk | cow |
| 628 | BS | Spain, United Kingdom | milk | cow |
|  |  |  | milk | goat\* |
|  | CF | Spain | milk | goat\* |
| 629 | CF | USA | milk | cow |
| 630 | CF | USA | milk | cow |
| 631 | CF | Brazil | milk | goat\* |
| 663 | EX | Norway | milk | cow |
| 664 | CF | Norway | milk | cow |
| 665 | BS | Spain | cheese\* | cow |
| 666 | BS | Italy | butter\* | cow |
| 667 | CF | Italy | milk | sheep\* |
| 668 | BS | Switzerland | cheese (emmentaler)\* | cow |
| 669 | CF | Denmark | desalted milk\* | cow |
|  |  |  | whey\* | cow |
| 670 | CF | Greece | milk | goat and sheep\* |
| 671 | CF | Finland | milk | cow |
| 672 | CF | USA | milk | cow |
| 673 | BS | USA | milk | cow |
| 674 | BS | Canada | cheese (cheddar)\* | cow |
|  |  |  | cheese (feta)\* | cow |
|  |  |  | cheese (gouda)\* | cow |
|  |  |  | cheese (feta) | not specified\* |
|  |  |  | cheese (mozzarella) | not specified\* |
| 675 | CF | Spain | milk | cow |
| ID, Paper unique identification number (see Table S1 for references); ST, Study type (CF – Comparison of Farms, BS – Basket Study, EX – Controlled Experiment). \*Data for products other than milk and animals other than cow was described in the main paper and summarised in Figure S35, Table S14 and S15. | | | | |

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| **Table S2 cont.** Study type, location, product and animal species information for studies included in the systematic review and the meta-analysis. | | | | |
| **ID** | **ST** | **Location** | **Product** | **Animal species** |
| 676 | BS | Greece | milk | cow |
| 678 | BS | Germany | butter\* | cow |
| 679 | BS | Poland | milk | cow |
| 680 | BS | Turkey | milk | cow |
| 681 | CF | Czech Republic | milk | cow |
| 682 | CF | Slovenia | milk | sheep\* |
| 683 | CF | Slovenia | milk | goat\* |
| 684 | CF | Brazil | milk | cow |
| 686 | CF | Italy | milk | buffalo\* |
| 687 | CF | Latvia | milk | goat\* |
| 688 | CF | Slovenia | milk | sheep\* |
| 689 | CF | Czech Republic | milk | cow |
| 690 | CF | Mexico | milk | cow |
| 692 | CF | Germany | milk | cow |
| 693 | CF | Latvia | milk | cow |
| 694 | CF | Latvia | milk | cow |
| 695 | BS | Spain | milk | cow |
| 696 | BS | Germany | milk | cow |
| 697 | BS | Germany | cheese\* | cow |
|  | EX | Germany | milk | cow |
| 698 | CF | Romania | milk | cow |
|  |  |  | milk | sheep\* |
| 699 | EX | Spain | milk | cow |
| 700 | BS | Brazil | milk | cow |
| 702 | EX | United Kingdom | milk | cow |
| 703 | BS | Denmark | milk | cow |
| 704 | EX | Sweden | milk | cow |
| 705 | BS | Brazil | milk | cow |
|  |  |  | fermented milk\* | cow |
| ID, Paper unique identification number (see Table S1 for references); ST, Study type (CF – Comparison of Farms, BS – Basket Study, EX – Controlled Experiment). \*Data for products other than milk and animals other than cow was described in the main paper and summarised in Figure S35, Table S14 and S15. | | | | |

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| **Table S2 cont.** Study type, location, product and animal species information for studies included in the systematic review and the meta-analysis. | | | | |
| **ID** | **ST** | **Location** | **Product** | **Animal species** |
| 706 | BS | Spain | milk | cow |
| 707 | BS | Spain | milk | cow |
| 708 | EX | New Zealand | milk | cow |
| 709 | BS | Romania | cheese\* | sheep\* |
| 710 | BS | Germany | butter\* | cow |
|  |  |  | cream\* | cow |
| 712 | BS | Poland | milk | cow |
| 713 | EX | Greece | milk | sheep\* |
| 714 | CF | Slovakia | milk | cow |
| 715 | CF | Denmark | milk | cow |
| 716 | CF | The Netherlands | milk | cow |
| 717 | CF | Sweden | milk | cow |
| 720 | CF | Germany | milk | cow |
| 721 | CF | Belgium | milk | cow |
| 722 | CF | Germany | milk | cow |
| 723 | CF | Canada | milk | cow |
| 724 | EX | Norway | milk | cow |
| 725 | BS | Denmark | milk | cow |
| 726 | CF | USA | milk | cow |
| 727 | CF | USA | milk | cow |
| 728 | CF | USA | milk | cow |
| 729 | CF | Sweden | milk | cow |
| 730 | CF | Norway | milk | cow |
| 731 | CF | Denmark | milk | cow |
| 732 | CF | Brazil | milk | cow |
| 733 | CF | Denmark | milk | cow |
| 734 | CF | Denmark | milk | cow |
| 735 | CF | Denmark | milk | cow |
| 736 | CF | USA | milk | cow |
| 737 | CF | USA | milk | cow |
| ID, Paper unique identification number (see Table S1 for references); ST, Study type (CF – Comparison of Farms, BS – Basket Study, EX – Controlled Experiment). \*Data for products other than milk and animals other than cow was described in the main paper and summarised in Figure S35, Table S14 and S15. | | | | |

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| **Table S2 cont.** Study type, location, product and animal species information for studies included in the systematic review and the meta-analysis. | | | | |
| **ID** | **ST** | **Location** | **Product** | **Animal species** |
| 738 | EX | New Zealand | milk | cow |
| 739 | CF | Denmark | milk | cow |
| 740 | CF | Sweden | milk | cow |
| 741 | CF | Canada | milk | cow |
| 742 | CF | USA | milk | cow |
| 743 | CF | Switzerland | milk | cow |
| 744 | CF | Canada | milk | cow |
| 745 | EX | New Zealand | milk | cow |
| 746 | CF | Canada | milk | cow |
| 747 | EX | New Zealand | milk | cow |
| 748 | CF | Sweden | milk | cow |
| 749 | CF | Austria | milk | cow |
| 750 | CF | France | milk | cow |
| 751 | CF | Norway | milk | cow |
| 752 | EX | New Zealand | milk | cow |
| 753 | CF | USA | milk | cow |
| 754 | CF | Sweden | milk | cow |
| 755 | CF | The Netherlands | milk | cow |
| ID, Paper unique identification number (see Table S1 for references); ST, Study type (CF – Comparison of Farms, BS – Basket Study, EX – Controlled Experiment). \*Data for products other than milk and animals other than cow was described in the main paper and summarised in Figure S35, Table S14 and S15. | | | | |

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| **Table S3.** Production systems information for studies with more than two systems included in the meta-analysis. | | | | |
| **ID** | **Location** | **SI** | **Production system as described by authors** | **Additional comparisons used in the sensitivity analyses 3 to 6\*** | |
| 157 | United Kingdom | 1 | organic (low-input)† | 1 and 3 | |
|  | 2 | conventional (high input, no more than 50% concentrate)† |  | |
|  |  | 3 | non-organic low-input (New Zealand-type) |  | |
| 158 | United Kingdom | 1 | organic (low-input)† | 1 and 3 | |
|  | 2 | conventional (high input, no more than 50% concentrate)† |  | |
|  |  | 3 | non-organic low-input (New Zealand-type) |  | |
| 176 | Germany | 1 | organic† | 1 and 3 | |
|  |  | 2 | conventional (pasture)† |  | |
|  |  | 3 | conventional (indoor) |  | |
| 178 | Germany | 1 | organic† |  | |
|  |  | 2 | conventional† |  | |
|  |  | 3 | conventional (Swiss-type 1)‡ |  | |
|  |  | 4 | conventional (Swiss-type 2)‡ |  | |
| 192 | Denmark | 1 | organic† |  | |
|  |  | 2 | conventional† |  | |
|  |  | 3 | conventional (extensive, Danish-type)‡ |  | |
| 196 | USA | 1 | organic (labelled)† | 1 and 3 | |
|  |  | 2 | conventional† |  | |
|  |  | 3 | recombinant bovine somatotropin free (rbST-free) milk |  | |
| ID, Paper unique identification number (see Table S1 for references); SI, system identifier. \*Numbers refer to the SI within the same study; †Used as a standard system in the standard meta-analysis; ‡Results from these treatments were removed from the meta-analysis; §Results from these treatments were averaged and used as a standard system in the meta-analysis. | | | | |

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| **Table S3 cont.** Production systems information for studies with more than two systems included in the meta-analysis. | | | | |
| **ID** | **Location** | **SI** | **Production system as described by authors** | **Additional comparisons used in the sensitivity analyses 3 to 6\*** | |
| 366 | USA | 1 | organic (labelled)† | 1 and 3 | |
|  |  | 2 | conventional† |  | |
|  |  | 3 | recombinant bovine somatotropin free (rbST-free) milk |  | |
| 414 | United Kingdom | 1 | organic (grazing-based, outdoor Apr-Oct)† | 1 and 3 | |
|  | 2 | conventional (grazing-based, standard milking)† | 1 and 4 | |
|  |  | 3 | conventional (grazing-based, robotic milking) |  | |
|  |  | 4 | conventional (indoor, high concentrate) |  | |
| 464 | Poland | 1 | organic (certified)† | 1 and 3 | |
|  |  | 2 | conventional (modern intensive)† |  | |
|  |  | 3 | conventional (extensive) |  | |
| 601 | Germany | 1 | organic (biodynamic, high-input)† | 1 and 4 | |
|  |  | 2 | conventional (high-input)† | 2 and 3 | |
|  |  | 3 | organic (biodynamic, low-input) | 3 and 4 | |
|  |  | 4 | conventional (low-input) |  | |
| 627 | The Netherlands | 1 | organic (biodynamic, continuous grazing)† | 1 and 3 | |
|  | 2 | conventional (daytime grazing)† | 1 and 4 | |
|  |  | 3 | conventional (no fresh grass) | 1 and 5 | |
|  |  | 4 | conventional (indoor with cut fresh grass) |  | |
|  |  | 5 | conventional (continuous grazing) |  | |
| ID, Paper unique identification number (see Table S1 for references); SI, system identifier. \*Numbers refer to the SI within the same study; †Used as a standard system in the standard meta-analysis; ‡Results from these treatments were removed from the meta-analysis; §Results from these treatments were averaged and used as a standard system in the meta-analysis. | | | | |

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| **Table S3 cont.** Production systems information for studies with more than two systems included in the meta-analysis. | | | | |
| **ID** | **Location** | **SI** | **Production system as described by authors** | **Additional comparisons used in the sensitivity analyses 3 to 6\*** | |
| 629 | USA | 1 | organic† | 1 and 3 | |
|  |  | 2 | conventional (no grazing)† |  | |
|  |  | 3 | conventional (grazing) |  | |
| 630 | USA | 1 | organic† | 1 and 3 | |
|  |  | 2 | conventional (no grazing)† |  | |
|  |  | 3 | conventional (grazing) |  | |
| 663 | Norway | 1 | organic (short-term grassland with timothy and red clover)† | 1 and 4 | |
|  |  | 2 | conventional (ley with timothy)† | 2 and 3 | |
|  |  | 3 | organic (long-term grassland with a high proportion of unsown species) | 3 and 4 | |
|  |  | 4 | conventional (ley with perennial ryegrass) |  | |
| 664 | Norway | 1 | organic (short-term grassland)† | 1 and 4 | |
|  |  | 2 | conventional (short-term grassland)† | 2 and 3 | |
|  |  | 3 | organic (long-term grassland) | 3 and 4 | |
|  |  | 4 | conventional (long-term grassland) |  | |
| 692 | Germany | 1 | organic (high-input)† | 1 and 4 | |
|  |  | 2 | conventional (high-input)† | 2 and 3 | |
|  |  | 3 | organic (low-input) | 3 and 4 | |
|  |  | 4 | conventional (low-input) |  | |
| ID, Paper unique identification number (see Table S1 for references); SI, system identifier. \*Numbers refer to the SI within the same study; †Used as a standard system in the standard meta-analysis; ‡Results from these treatments were removed from the meta-analysis; §Results from these treatments were averaged and used as a standard system in the meta-analysis. | | | | |

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| **Table S3 cont.** Production systems information for studies with more than two systems included in the meta-analysis. | | | | |
| **ID** | **Location** | **SI** | **Production system as described by authors** | **Additional comparisons used in the sensitivity analyses 3 to 6\*** | |
| 723 | Canada | 1 | organic (certified)† |  | |
|  |  | 2 | conventional (global extensive, production less than 4225 L per ha fodder)§ |  | |
|  |  | 3 | conventional (global intensive, production more than 8336 L per ha fodder)§ |  | |
|  |  | 4 | conventional (extensive dairy, production less than 5719 L per cow)§ |  | |
|  |  | 5 | conventional (intensive dairy, production more than 7338 L per cow)§ |  | |
|  |  | 6 | conventional (low-input, production less than 257 kg per cow protein concentrate)§ |  | |
|  |  | 7 | conventional (high-input, production more than 490 kg per cow protein concentrate)§ |  | |
| 742 | USA | 1 | organic† | 1 and 3 | |
|  |  | 2 | conventional (no grazing)† |  | |
|  |  | 3 | conventional (grazing) |  | |
| 753 | USA | 1 | organic† | 1 and 3 | |
|  |  | 2 | conventional (no grazing)† |  | |
|  |  | 3 | conventional (grazing) |  | |
| ID, Paper unique identification number (see Table S1 for references); SI, system identifier. \*Numbers refer to the SI within the same study; †Used as a standard system in the standard meta-analysis; ‡Results from these treatments were removed from the meta-analysis; §Results from these treatments were averaged and used as a standard system in the meta-analysis. | | | | |

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| **Table S4.** Information extracted from 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 chapter, thesis), corresponding author, language of publication, information about peer-review, source of paper (electronic databases, contact with authors, reference list of reviews and original publications). |
| **Study characteristics** | Study type (CF, comparison of farms; BS, basket study; EX, controlled experiment), product, species, breed, production system description, experimental year(s), location of the study by country\*. |
| **Data** | Name of the compositional parameter, number of replicates, mean, standard error (SE), standard deviation (SD), measurement unit, data type (numeric, graphical). |
| \*Country codes according ISO 3166-2 (see [*http://www.iso.org/iso/home/standards/country\_codes.htm*](http://www.iso.org/iso/home/standards/country_codes.htm)) | |

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| **Table S5.** Summary of inclusion criteria used in the standard and the sensitivity analyses carried out. Results of the sensitivity analyses 2-8 are shown in the Appendix on the Newcastle University website ([*http://research.ncl.ac.uk/nefg/QOF*](http://research.ncl.ac.uk/nefg/QOF)) | | | | | | | | | | |
| **Analysis** | **Data available** | |  | **Experimental years** | |  | **Production systems compared** | |  | **20% of studies with the least precise treatment effects excluded** |
| Only papers  reporting N, mean, SD/SE | All papers  reporting means |  | One data point from one paper\* | Individual year as separate data points† |  | Standard organic  with standard conventional‡ | Each organic  with each conventional |  |
| Standard§ |  |  |  |  |  |  |  |  |  |  |
| WM | + |  |  | + |  |  | + |  |  |  |
| Sensitivity|| |  |  |  |  |  |  |  |  |  |  |
| 1 (UM)§ |  | + |  | + |  |  | + |  |  |  |
| 2 (WM) | + |  |  |  | + |  | + |  |  |  |
| 3 (UM) |  | + |  |  | + |  | + |  |  |  |
| 4 (WM) | + |  |  | + |  |  |  | + |  |  |
| 5 (UM) |  | + |  | + |  |  |  | + |  |  |
| 6 (WM) | + |  |  |  | + |  |  | + |  |  |
| 7 (UM) |  | + |  |  | + |  |  | + |  |  |
| 8 (WM) | + |  |  | + |  |  | + |  |  | + |
| \*If data from more than one experimental years were presented separately in the paper, average was calculated and included in the meta-analysis; †If data from more than one experimental years were presented separately in the paper, they were analysed separately, as individual data points; ‡A pragmatic choice was made to compare standard organic with a standard conventional comparator; §Results of the standard meta-analysis and sensitivity analysis 1 are presented in the main paper; ||Sensitivity analysis was conducted to explore the robustness of the arbitrary decisions and to illustrate all effects (see Supplementary Table S3 for details and Appendix Table A1 and A2 for results). WM, weighted meta-analysis; UM, unweighted meta-analysis. | | | | | | | | | | |

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| **Table S6.** List of composition parameters included in the meta-analysis.\* | |
| **Category** | **Parameters** |
| **Major components** | Ash, Casein, Fat, Lactose, Protein, Protein (whey), Solids, Solids (no-fat),  α-lactalbumin, β-lactoglobulin |
| **Fatty acids** | 18:1, 18:2, 18:3, 18:4, 10:0 (capric acid), 10:1 (4-cis-decenoic acid), 12:0 (lauric acid),  12:0+14:0+16:0†, 12:1 (lauroleic acid), 13:0 (tridecylic acid), 14:0 (myristic acid),  14:1 (myristoleic acid), 15:0 (pentadecanoic acid), 16:0 (palmitic acid), 16:1 (palmitoleic acid), 17:0 (heptadecanoic acid), 17:1 (heptadecenoic acid), 18:0 (stearic acid), 20:0 (arachidic acid), 22:0 (behenic acid), 24:0 (lignoceric acid), 4:0 (butyric acid), 6:0 (caproic acid), 8:0 (caprylic acid), AA (cis-5,8,11,14-20:4), ALA (cis-9,12,15-18:3), cis-11,14-20:2, cis-11-18:1 (cis-vaccenic acid), cis-11-20:1 (eicosenoic acid), cis-12-18:1, cis-13-18:1, cis-9-20:1, CLA9 (cis-9-trans-11-18:2), CLA (total), CLA10 (trans-10-cis-12-18:2), CLA (trans-11,13-18:2), CLA (trans-12,14-18:2), CLA (trans-7,9-18:2), CLA (trans-9,11-18:2), DGLA (cis-8-11-14-C20:3), DHA (cis-4,7,10,13,16,19-22:6), DPA (cis-7,10,13,16,19-22:5), EPA (cis-5,8,11,14,17-20:5), ETE (cis-11,14,17-20:3), Free fatty acids, GLA (cis-6,9,12-18:3), LA (cis-9,12-18:2), LA/ALA ratio†, Long chain FA, Medium chain FA, MUFA, n-3 FA, n-3/n-6 ratio, n-6 FA, n-6/n-3 ratio, OA (cis-9-18:1), Phytanic acid diastereomers ratio (SRR/RRR), PUFA, SFA, Short chain FA, trans-12-18:1, trans-18:1, trans-6-8-18:1, trans-9,12-18:2, trans-9-18:1 (elaidic acid), USFA, VA (trans-11-18:1), VLC n-3 PUFA (EPA+DPA+DHA)† |
| **N components** | Urea |
| **Vitamins and antioxidants** | 2R (synthetic) isomers of α-tocopherol, 3R (natural) isomers of α-tocopherol, Carotenoids, Lutein, Vitamin A, Vitamin C, Vitamin D, Vitamin E activity, Zeaxanthin, α-tocopherol, β-carotene |
| **Minerals and undesirable metals** | Cadmium (Cd), Calcium (Ca), Cobalt (Co), Copper (Cu), Iodine (I), Iron (Fe),  Lead (Pb), Magnesium (Mg), Manganese (Mn), Molybdenum (Mo), Phosphorus (P), Potassium (K), Selenium (Se), Sodium (Na), Zinc (Zn) |
| **Pesticides, mycotoxins  and other contaminants** | Aflatoxin M1, Dieldrin, Hexachlorobenzene (HCB), α-esachlorciclohexane (α-HCH),  γ-esachlorciclohexane (γ-HCH) |
| **Other** | Atherogenicity Index, Bacteria count, Dry mass, Lactoferrin, Lysozyme, Milk yield, pH, SCC, Thrombogenicity index, Titratable acidity |
| \*Compounds for which number of comparisons organic vs. conventional was ≥ 3, †Calculated based on published fatty acids composition data. | |

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| **Table S7.** List of composition parameters excluded from the meta-analysis.\* | |
| **Category** | **Parameters** |
| **Major components** | Butterfat, Protein (crude), Protein (true), Solids (other), Water, α-casein, β-casein,  β-lactoglobulin A (βLgA), β-lactoglobulin B (βLgB), κ-casein |
| **Fatty acids** | 9:0, 11:0, 15:1, 19:0, 20:1, 20:3, 21:0, 22:1, 22:2, 18:2 ttNMID, 23:0 (cerotic acid), 3R,7R,11R,15-phytanic acid (RRR), 3R,7R,11R,15-phytanic acid (RRR), 3S,7R,11R,15-phytanic acid (SRR) (% total phytanic acid isomers), 5:0 (valeric acid), 6:0+15:1+17:0+cis-9,12,15-18:3, 7:0 (enanthic acid), ALA+CLA, ALA+GLA, Anteiso-12:0, Anteiso-13:0, Anteiso-14:0, Anteiso-15:0, Anteiso-16:0, Anteiso-17:0, Branched 15:0, Branched 17:0, Branched chain FA (total), Cis fatty acids, cis-11-22:1, cis-12:1+13:0, cis-13,16-22:2, cis-13-22:1, cis-14:1, cis-14-18:1+trans-16-18:1, cis-15-18:1, cis-15-24:1, cis-4,7,10,13,16-22:5 (total), cis-5-20:1, cis-7-10-18:1, cis-7-14:1, cis-7-16:1, cis-9,15-18:2, cis-9-16:1, cis-9-17:1 (margaroleic acid), cis-9-20:1, cis-9-trans-12-18:2, cis-9-trans12-18:2+cis-cis-MID+trans-8-cis-13-18:2, cis-9-trans-13-18:2+trans-8-cis-12-18:2, CLA (cis/trans-12,14-18:2), CLA (cis-10-trans-12/trans-10-cis-12-18:2), CLA (cis-11-trans-13/trans-11-cis-13-18:2), CLA (cis-11-trans-13-18:2), CLA (cis-18:2), CLA (cis-7-trans-9/trans-7-cis-9-18:2), CLA (cis-9-trans-11/trans-9-cis-11-18:2), CLA (cis-9-trans-11-18:2) + (trans-8-cis-10-18:2) + (trans-7-cis-9-18:2), CLA (cis-9-trans-11-18:2) + (trans-9-cis-11-18:2), CLA (cis-trans/trans-cis-18:2), CLA (trans-8,10-18:2), CLA (trans-10,12-18:2), CLA (trans-11-cis-13-18:2), CLA (trans-11-cis-13-18:2) / (trans-7-cis-9-18:2) ratio, CLA (trans-11-cis-13-18:2) + (cis-9,11-18:2), CLA (trans-6,8-18:2), CLA (trans-7-cis-9-18:2), CLA (trans-8-cis-10-18:2), CLA (trans-trans-18:2), CLA/LA ratio, DTA (cis-7,10,13,16-22:4), Fatty acids (total), Functional Fatty Acid, Furan fatty acid DiMeF(11,5), Furan fatty acid DiMeF(9,5), Furan fatty acid MeF(11,5), Furan fatty acid MeF(7,5), Furan fatty acid MeF(9,5), Furan fatty acids, Iso-12:0, Iso-13:0, Iso-14:0, Iso-15:0, Iso-16:0, Iso-17:0, LA/ALA ratio, Long chain n-3 FA, n-6/(n-3+CLA) ratio, Pristanic acid, Serum albumin, SFA/USFA ratio, Trans FA, Trans fatty acids without CLA, trans-10-18:1, trans-10-18:1+trans-11-18:1, trans-11-cis-15-18:2+trans-9-cis-12-18:2, trans-13-14-18:1+cis-6-8-18:1, trans-13-18:1, trans-14:1, trans-15-18:1, trans-16:1, trans-16-18:1, trans-17:1, trans-18:2 (trans-octadecadienoic acid), trans-20:1, trans-4-18:1, trans-5-18:1, trans-7-16:1, trans-9,12-18:2+cis-16-18:1, trans-9-14:1, trans-9-cis-12-18:2, Triglycerides |
| **N components** | Alanine, Ammonia, Arginine, Aspartic acid, Cysteine, Glutamine, Glycine, Histidine, Isoleucine, Leucine, Lysine, Methionine, Nitrate, Nitrite, Nitrogen, Nitrogen (non-protein), Nitrogen (non-protein), Phenylalanine, Proline, Protein N (% total N), Serine, TCA-soluble nitrogen, Threonine, Tyrosine, Valine, Val-Pro-Pro (VPP) peptide, VPP + IPP peptides |
| **Vitamins and antioxidants** | Antioxidant Capacity (Trolox equivalent), Biochanin (isoflavone), Butylated hydroxytoluene (BHT) (synthetic antioxidant), Butylated hydroxytoluene (BHT) (synthetic antioxidant), Canthaxanthin, Citric acid, Coumestrol (coumestans), Daidzein, Enterodiol, Enterolactone, Formononetin, Genistein, Hippuric acid, Matairesinol, Prunetin, Riboflavin, Secoisolariciresinol, Total antioxidant status (TAS), Vitamin B1, Vitamin K, α-carotene, β-carotene isomers, β-cryptoxanthin |
| **Minerals and undesirable metals** | Aluminium (Al), Arsenic (As), Barium (Ba), Bismuth (Bi), Boron (B), Chromium (Cr), Europium (Eu), Germanium (Ge), Lithium (Li), Mercury (Hg), Minerals (total), Neodymium (Nd), Nickel (Ni), Rhenium (Re), Rhodium (Rh), Silicon (Si), Strontium (Sr), Sulfur (S), Tin (Sn), Vanadium (V) |
| \*Compounds for which number of comparisons organic vs. conventional was < 3. | |

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| **Table S7 cont.** List of composition parameters excluded from the meta-analysis.\* | |
| **Category** | **Parameters** |
| **Pesticides, mycotoxins  and other contaminants** | 1,2,3,4,6,7,8-HpCDD, 1,2,3,4,6,7,8-HpCDF, 1,2,3,4,7,8,9-HpCDF, 1,2,3,4,7,8-HxCDD, 1,2,3,4,7,8-HxCDF, 1,2,3,6,7,8-HxCDD, 1,2,3,6,7,8-HxCDF, 1,2,3,7,8,9-HxCDD, 1,2,3,7,8,9-HxCDF, 1,2,3,7,8-PeCDD, 1,2,3,7,8-PeCDF, 2,3,4,6,7,8-HxCDF, 2,3,4,7,8-PeCDF, 2,3,7,8-TCDD, 2,3,7,8-TCDF, Aflatoxin, Aldrin, Chlordanes, Cis-clordane, Cis-clordane, Cyclodienes, DDE, DDT, Dioxin-like-polychlorinated biphenyls, Dioxins, Dioxins + furans, Endosulfans, Endrin, Eptachlor, Esachlorciclohexane (HCH), Furans, H-epoxide, Heptachlor, Marker-polychlorinated biphenyls, Methoxychlor, Mirex, Non-ortho polychlorinated biphenyls (Non-ortho-PCB), o,p'DDD, o,p'DDE, o,p'DDT, Ochratoxin A, Octaclorostyrene, Organochlorine pesticides, Ortho polychlorinated biphenyls (Ortho-PCB), Ossiclordane, p,p'DDD, p,p'DDE, p,p'DDT, Pesticide residues, Polybrominated diphenyl ethers (PBDE), Polychlorinated biphenyl 101 (PCB 101), Polychlorinated biphenyl 105 (PCB 105), Polychlorinated biphenyl 114 (PCB 114), Polychlorinated biphenyl 118 (PCB 118), Polychlorinated biphenyl 123 (PCB 123), Polychlorinated biphenyl 126 (PCB 126), Polychlorinated biphenyl 138 (PCB 138), Polychlorinated biphenyl 153 (PCB 153), Polychlorinated biphenyl 156 (PCB 156), Polychlorinated biphenyl 157 (PCB 157), Polychlorinated biphenyl 167 (PCB 167), Polychlorinated biphenyl 169 (PCB 169), Polychlorinated biphenyl 180 (PCB 180), Polychlorinated biphenyl 189 (PCB 189), Polychlorinated biphenyl 28 (PCB 28), Polychlorinated biphenyl 52 (PCB 52), Polychlorinated biphenyl 77 (PCB 77), Polychlorinated biphenyl 81 (PCB 81), Polychlorinated biphenyls (PCB), Polychlorinated Biphenyls toxicity equivalents (TEQ-PCB), Quintozene, Trans-clordane, Trans-clordene, Trans-nonachlor,  WHO-Toxic Equivalents (TEQ), α+β-esachlorciclohexane (α+β-HCH), α-endosulfan,  β-endosulfan, β-esachlorciclohexane (β-HCH), Δ-esachlorciclohexane (Δ-HCH) |
| **Volatile compounds** | Acetone, Ether extract |
| **Other** | Acidity, Alcohol stability, Bovine serum albumin (BSA), Bovine somatotropin, Coliforms bacteria, Equol, Estradiol, Estrone (E1), Hypocholesterolemic/ hypercholesterolemic FA ratio, Ile-Pro-Pro (IPP) peptide, Immunoglobulin A (IgA), Immunoglobulin G (IgG), Immunoglobulin M (IgM), Insulin-like growth factor-1 (IGF-1), Lactate, Lactic acid, Lactoperoxidase, Lymphocyte stimulation index (in vitro), Plate loop count, Progesterone, Sodium chloride (NaCl), Spontaneous lymphocyte activity (in vitro), Stable carbon isotope 13C, Δ-9 desaturase 14:1/14:0 activity index, Δ-9 desaturase 16:1/16:0 activity index, Δ-9 desaturase 18:1/18:0 activity index, Δ-9 desaturase CLA (cis-9-trans-11-18:2) / VA activity index |
| \*Compounds for which number of comparisons organic vs. conventional was < 3. | |

# 2. ADDITIONAL RESULTS

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| **Table S8.** Basic information/statistics on the publications/data used for meta-analyses of composition parameters included in Fig. 2 and 3 in the main paper. | | | | | | | | | | |
|  |  |  |  |  | **Number of comparisons reporting that concentrations were** | | | | | |
|  |  |  | **Total sample size\*** | | **Numerically higher in** | | **Identical** | **Significantly higher in** | | **Not significantly different**§ |
| **Parameter** | **Studies** | ***n*** | **ORG** | **ORG** | **ORG** | **CONV** | **ORG**† | **CONV**‡ |
| Milk yield | 81 | 81 | 4237 | 23587 | 8 | 73 | 0 | 2 | 29 | 9 |
| SFA | 32 | 33 | 390 | 384 | 16 | 17 | 0 | 3 | 3 | 16 |
| 12:0 (lauric acid) | 17 | 17 | 260 | 250 | 8 | 9 | 0 | 7 | 3 | 4 |
| 14:0 (myristic acid) | 18 | 18 | 265 | 255 | 11 | 7 | 0 | 7 | 2 | 6 |
| 16:0 (palmitic acid) | 20 | 20 | 279 | 269 | 7 | 13 | 0 | 4 | 6 | 7 |
| MUFA | 30 | 31 | 365 | 360 | 13 | 18 | 0 | 2 | 9 | 10 |
| OA (cis-9-18:1) | 16 | 16 | 252 | 242 | 8 | 8 | 0 | 3 | 4 | 6 |
| VA (trans-11-18:1) | 18 | 18 | 219 | 266 | 18 | 0 | 0 | 9 | 0 | 4 |
| PUFA | 29 | 30 | 595 | 581 | 25 | 4 | 1 | 11 | 1 | 9 |
| CLA (total) | 18 | 19 | 159 | 141 | 17 | 2 | 0 | 4 | 0 | 6 |
| CLA9 (cis-9-trans-11-18:2) | 20 | 20 | 557 | 590 | 19 | 1 | 0 | 7 | 0 | 5 |
| CLA10 (trans-10-cis-12-18:2) | 7 | 7 | 109 | 120 | 4 | 0 | 2 | 1 | 0 | 4 |
| n-3 FA | 19 | 20 | 289 | 281 | 20 | 0 | 0 | 13 | 0 | 1 |
| ALA (cis-9,12,15-18:3) | 33 | 34 | 678 | 698 | 34 | 0 | 0 | 17 | 0 | 3 |
| EPA (cis-5,8,11,14,17-20:5) | 13 | 14 | 287 | 281 | 13 | 0 | 1 | 9 | 0 | 2 |
| DPA (cis-7,10,13,16,19-22:5) | 8 | 8 | 198 | 192 | 8 | 0 | 0 | 6 | 0 | 2 |
| DHA (cis-4,7,10,13,16,19-22:6) | 6 | 6 | 187 | 181 | 4 | 0 | 2 | 2 | 0 | 3 |
| VLC n-3 PUFA|| | 5 | 5 | 175 | 169 | 5 | 0 | 0 | 0 | 0 | 0 |
| *n*, numbers of data points (comparisons) included in the meta-analysis; ORG, organic samples; CONV, conventional samples; SFA, saturated fatty acids; MUFA, monounsaturated fatty acids; OA, oleic acid; VA, vaccenic acid; PUFA, polyunsaturated fatty acids; FA, fatty acids; CLA, conjugated linoleic acid; ALA, α-linolenic acid; EPA, eicosapentaenoic acid; DPA, docosapentaenoic acid; DHA, docosahexaenoic acid; VLC n-3 PUFA, very long chain n-3 PUFA (EPA+DPA+DHA). \*Total number of samples analysed in different publications; †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; ||Calculated based on published fatty acids composition data. | | | | | | | | | | |

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| **Table S8 cont.** Basic information/statistics on the publications/data used for meta-analyses of composition parameters included in Fig. 2 and 3 in the main paper. | | | | | | | | | | |
|  |  |  |  |  | **Number of comparisons reporting that concentrations were** | | | | | |
|  |  |  | **Total sample size\*** | | **Numerically higher in** | | **Identical** | **Significantly higher in** | | **Not significantly different**§ |
| **Parameter** | **Studies** | ***n*** | **ORG** | **CONV** | **ORG** | **CONV** | **ORG**† | **CONV**‡ |
| n-6 FA | 19 | 20 | 545 | 526 | 8 | 11 | 1 | 3 | 4 | 5 |
| LA (cis-9,12-18:2) | 22 | 22 | 311 | 323 | 7 | 15 | 0 | 4 | 7 | 6 |
| AA (cis-5,8,11,14-20:4) | 9 | 9 | 194 | 188 | 0 | 7 | 2 | 0 | 6 | 3 |
| LA/ALA ratio|| | 19 | 19 | 269 | 285 | 0 | 19 | 0 | 0 | 0 | 0 |
| n-6/n-3 ratio | 22 | 23 | 308 | 304 | 0 | 23 | 0 | 0 | 9 | 3 |
| n-3/n-6 ratio | 23 | 24 | 310 | 307 | 23 | 1 | 0 | 9 | 0 | 0 |
| α-tocopherol | 16 | 17 | 123 | 147 | 12 | 4 | 1 | 3 | 0 | 4 |
| Carotenoids | 4 | 5 | 38 | 60 | 2 | 3 | 0 | 1 | 0 | 2 |
| β-carotene | 13 | 14 | 129 | 159 | 8 | 5 | 1 | 3 | 1 | 4 |
| Lutein | 5 | 6 | 38 | 60 | 5 | 1 | 0 | 2 | 0 | 2 |
| Zeaxanthin | 5 | 6 | 38 | 60 | 5 | 1 | 0 | 3 | 1 | 0 |
| Iodine (I) | 7 | 7 | 194 | 172 | 0 | 7 | 0 | 0 | 4 | 1 |
| Iron (Fe) | 9 | 9 | 85 | 67 | 6 | 3 | 0 | 2 | 0 | 2 |
| Selenium (Se) | 8 | 8 | 100 | 85 | 2 | 6 | 0 | 0 | 1 | 2 |
| Urea | 11 | 11 | 208 | 217 | 4 | 7 | 0 | 0 | 2 | 6 |
| SCC | 47 | 47 | 3012 | 18429 | 32 | 15 | 0 | 4 | 3 | 18 |
| *n*, numbers of data points (comparisons) included in the meta-analysis; ORG, organic samples; CONV, conventional samples; FA, fatty acids; LA, linoleic acid; AA, arachidonic acid; ALA, α-linolenic acid; SCC, somatic cell count. \*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; §Calculated based on published fatty acids composition data. | | | | | | | | | | |

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| **Table S9.** Mean percentage differences (MPD) and confidence intervals (CI) calculated using the data included in standard meta-analyses and sensitivity analysis 1 of composition parameters shown in Fig. 2 and 3 of the main paper (MPDs are also shown as symbols in Fig. 2). | | | | | | | |
|  | **Standard meta-analysis** | | |  | **Sensitivity analysis 1** | | |
| **Parameter** | ***n*** | **MPD\*** | **95% CI** |  | ***n*** | **MPD\*** | **95% CI** |
| Milk yield | 32 | -22.49 | -30.47, -14.52 |  | 81 | -19.57 | -23.62, -15.52 |
| SFA | 19 | -0.69 | -2.24, 0.86 |  | 33 | -0.80 | -1.96, 0.37 |
| 12:0 (lauric acid) | 11 | -3.59 | -10.22, 3.03 |  | 17 | -1.98 | -8.12, 4.16 |
| 14:0 (myristic acid) | 12 | 1.02 | -2.60, 4.63 |  | 18 | 1.57 | -1.60, 4.74 |
| 16:0 (palmitic acid) | 14 | -4.65 | -8.45, -0.85 |  | 20 | -3.74 | -6.81, -0.67 |
| MUFA | 19 | 1.20 | -3.13, 5.53 |  | 31 | -0.15 | -3.34, 3.04 |
| OA (cis-9-18:1) | 10 | 2.78 | -3.32, 8.88 |  | 16 | 1.41 | -3.29, 6.10 |
| VA (trans-11-18:1) | 12 | 65.91 | 19.70, 112.12 |  | 18 | 58.07 | 27.01, 89.12 |
| PUFA | 19 | 7.30 | -0.73, 15.34 |  | 30 | 14.78 | 7.05, 22.51 |
| CLA (total) | 11 | 41.13 | 14.19, 68.08 |  | 19 | 47.47 | 20.78, 74.16 |
| CLA9 (cis-9-trans-11-18:2) | 14 | 23.89 | 8.39, 39.39 |  | 20 | 34.36 | 17.93, 50.80 |
| CLA10 (trans-10-cis-12-18:2) | 3 | 28.24 | -20.92, 77.40 |  | 7 | 34.96 | 2.94, 66.98 |
| n-3 FA | 12 | 55.67 | 37.68, 73.66 |  | 20 | 60.14 | 45.07, 75.20 |
| ALA (cis-9,12,15-18:3) | 21 | 68.62 | 53.04, 84.20 |  | 34 | 78.66 | 66.04, 91.29 |
| EPA (cis-5,8,11,14,17-20:5) | 8 | 67.14 | 32.35, 101.94 |  | 14 | 66.34 | 39.86, 92.82 |
| DPA (cis-7,10,13,16,19-22:5) | 5 | 44.83 | 18.23, 71.44 |  | 8 | 38.23 | 20.57, 55.89 |
| DHA (cis-4,7,10,13,16,19-22:6) | 3 | 21.48 | -3.71, 46.67 |  | 6 | 194.07 | -89.14, 477.29 |
| VLC n-3 PUFA† | - | - | - |  | 5 | 57.16 | 27.25, 87.07 |
| *n*, number of data points included in the comparison; MPD, mean percentage difference; SFA, saturated fatty acids; MUFA, monounsaturated fatty acids; OA, oleic acid; VA, vaccenic acid; PUFA, polyunsaturated fatty acids; FA, fatty acids; CLA, conjugated linoleic acid; ALA, α-linolenic acid; EPA, eicosapentaenoic acid; DPA, docosapentaenoic acid; DHA, docosahexaenoic acid; VLC n-3 PUFA, very long chain n-3 PUFA (EPA+DPA+DHA). \*Magnitude of difference between organic (ORG) and conventional (CONV) samples (value <0 indicate higher concentration in CONV, value >0 indicate higher concentration in ORG); †Calculated based on published fatty acids composition data. | | | | | | | |

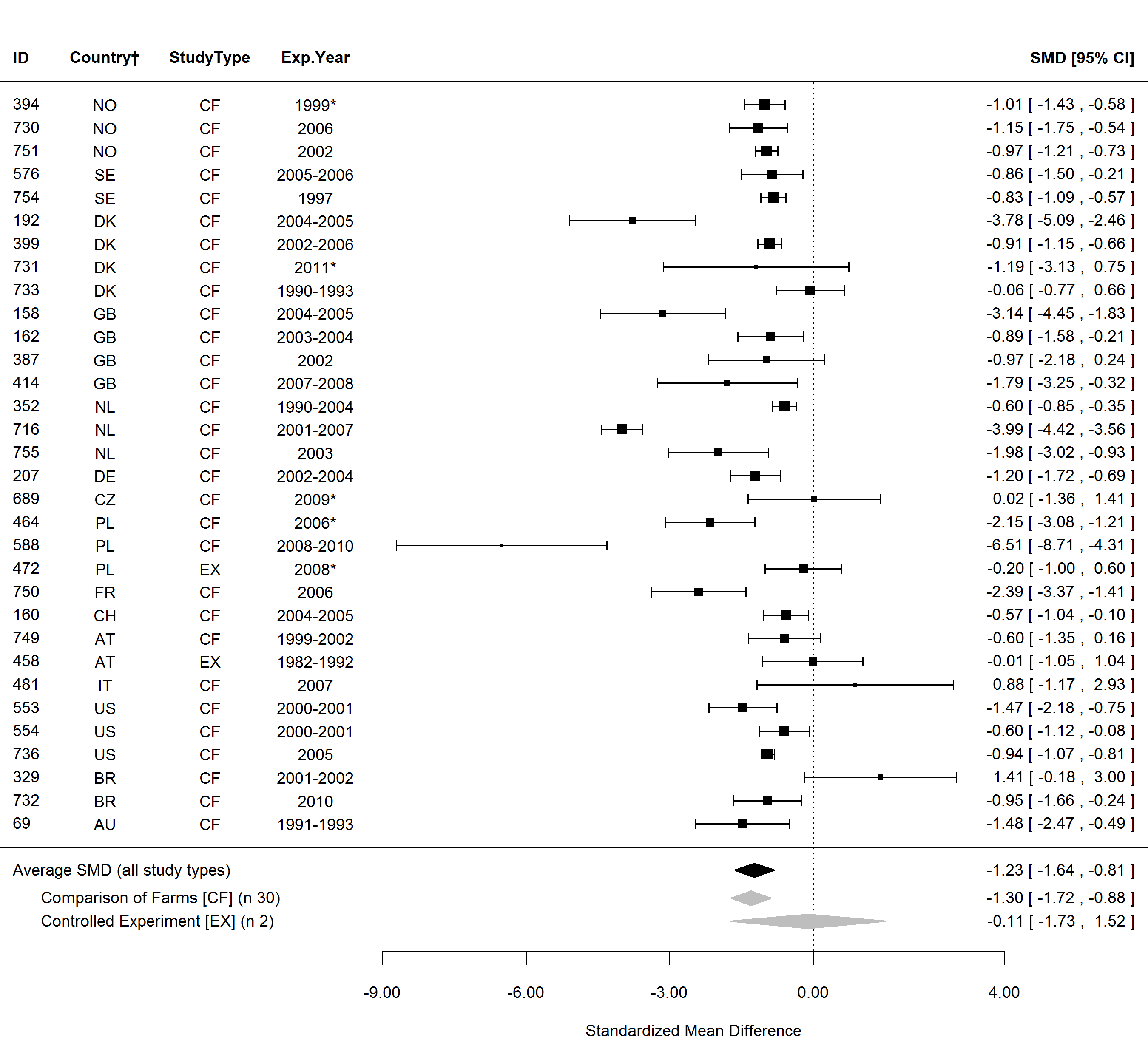
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| **Table S9 cont.** Mean percentage differences (MPD) and confidence intervals (CI) calculated using the data included in standard meta-analyses and sensitivity analysis 1 of composition parameters shown in Fig. 2 and 3 of the main paper (MPDs are also shown as symbols in Fig. 2). | | | | | | | |
|  | **Standard meta-analysis** | | |  | **Sensitivity analysis 1** | | |
| **Parameter** | ***n*** | **MPD\*** | **95% CI** |  | ***n*** | **MPD\*** | **95% CI** |
| n-6 FA | 12 | -4.03 | -13.83, 5.76 |  | 20 | -1.50 | -10.62, 7.61 |
| LA (cis-9,12-18:2) | 12 | -14.40 | -29.51, 0.71 |  | 22 | -4.82 | -15.27, 5.64 |
| AA (cis-5,8,11,14-20:4) | 5 | -24.15 | -41.00, -7.30 |  | 9 | -20.58 | -30.83, -10.32 |
| LA/ALA ratio† | - | - | - |  | 19 | -93.34 | -116.41, -70.28 |
| n-6/n-3 ratio | 7 | -71.16 | -122.01, -20.31 |  | 23 | -72.07 | -92.86, -51.29 |
| n-3/n-6 ratio | 5 | 72.21 | 36.08, 108.35 |  | 24 | 64.95 | 44.22, 85.67 |
| α-tocopherol | 9 | 12.98 | 0.51, 25.45 |  | 17 | 11.68 | 2.52, 20.84 |
| Carotenoids | 5 | 31.83 | -37.01, 100.66 |  | 5 | 31.83 | -37.01, 100.66 |
| β-carotene | 7 | 0.64 | -14.55, 15.82 |  | 14 | 27.79 | -2.40, 57.97 |
| Lutein | 3 | 12.71 | -46.12, 71.54 |  | 6 | 104.08 | -33.66, 241.82 |
| Zeaxanthin | - | - | - |  | 6 | 38.99 | 1.43, 76.55 |
| Iodine (I) | 6 | -73.85 | -115.19, -32.5 |  | 7 | -73.08 | -108.05, -38.10 |
| Iron (Fe) | 8 | 20.18 | -0.10, 40.46 |  | 9 | 16.59 | -2.63, 35.81 |
| Selenium (Se) | 4 | -21.42 | -48.93, 6.09 |  | 8 | -28.06 | -69.25, 13.13 |
| Urea | 7 | -9.67 | -24.70, 5.36 |  | 11 | -8.75 | -19.64, 2.14 |
| SCC | 20 | 8.19 | -12.98, 29.36 |  | 47 | 1.15 | -22.52, 24.82 |
| *n*, number of data points included in the comparison; MPD, mean percentage difference; FA, fatty acids; LA, linoleic acid; AA, arachidonic acid; ALA, α-linolenic acid; SCC, somatic cell count. \*Magnitude of difference between organic (ORG) and conventional (CONV) samples (value <0 indicate higher concentration in CONV, value >0 indicate higher concentration in ORG); †Calculated based on published fatty acids composition data. | | | | | | | |

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| **Table S10.** Mean values and confidence intervals (CI) calculated using the data for all papers reporting means of composition parameters shown in Fig. 2 and 3 of the main paper. | | | | | | | |
|  |  |  | **Organic** | |  | **Conventional** | |
| **Parameter** | **Unit** | ***n*** | **Mean** | **95% CI** |  | **Mean** | **95% CI** |
| Milk yield\* | kg/cow/day | 51 | 18.76 | 17.49, 20.03 |  | 22.53 | 20.99, 24.06 |
| Milk yield\* | kg/cow/lactation | 16 | 6451 | 5976, 6926 |  | 7550 | 6969, 8132 |
| SFA | mg/g FA | 32 | 678.41 | 665.44, 691.39 |  | 683.82 | 669.78, 697.85 |
| 12:0 (lauric acid) | mg/g FA | 17 | 33.32 | 29.93, 36.70 |  | 33.79 | 30.75, 36.83 |
| 14:0 (myristic acid) | mg/g FA | 18 | 113.08 | 106.61, 119.55 |  | 111.23 | 105.60, 116.85 |
| 16:0 (palmitic acid) | mg/g FA | 20 | 304.35 | 289.80, 318.90 |  | 315.14 | 300.57, 329.71 |
| MUFA | mg/g FA | 30 | 271.96 | 261.46, 282.46 |  | 272.25 | 262.79, 281.71 |
| OA (cis-9-18:1) | mg/g FA | 16 | 225.00 | 205.20, 244.80 |  | 222.38 | 202.05, 242.71 |
| VA (trans-11-18:1) | mg/g FA | 18 | 23.82 | 20.57, 27.08 |  | 16.30 | 14.02, 18.58 |
| PUFA | mg/g FA | 29 | 41.42 | 37.57, 45.26 |  | 36.31 | 33.48, 39.14 |
| CLA (total) | mg/g FA | 18 | 9.72 | 8.00, 11.43 |  | 6.98 | 5.55, 8.41 |
| CLA9 (cis-9-trans-11-18:2) | mg/g FA | 20 | 8.66 | 6.87, 10.46 |  | 6.71 | 5.17, 8.25 |
| CLA10 (trans-10-cis-12-18:2) | mg/g FA | 7 | 0.55 | 0.16, 0.94 |  | 0.38 | 0.15, 0.62 |
| n-3 FA | mg/g FA | 19 | 10.22 | 9.04, 11.41 |  | 6.69 | 5.53, 7.84 |
| ALA (cis-9,12,15-18:3) | mg/g FA | 33 | 7.73 | 7.02, 8.43 |  | 4.38 | 3.96, 4.80 |
| EPA (cis-5,8,11,14,17-20:5) | mg/g FA | 13 | 0.87 | 0.72, 1.02 |  | 0.56 | 0.45, 0.66 |
| DPA (cis-7,10,13,16,19-22:5) | mg/g FA | 8 | 1.02 | 0.85, 1.18 |  | 0.76 | 0.59, 0.93 |
| DHA (cis-4,7,10,13,16,19-22:6) | mg/g FA | 6 | 0.29 | 0.00, 0.58 |  | 0.09 | 0.05, 0.13 |
| VLC n-3 PUFA† | mg/g FA | 5 | 2.10 | 1.68, 2.52 |  | 1.38 | 1.04, 1.71 |
| *n*, number of data points included in the comparison; MPD, mean percentage difference; SFA, saturated fatty acids; MUFA, monounsaturated fatty acids; OA, oleic acid; VA, vaccenic acid; PUFA, polyunsaturated fatty acids; FA, fatty acids; CLA, conjugated linoleic acid; ALA, α-linolenic acid; EPA, eicosapentaenoic acid; DPA, docosapentaenoic acid; DHA, docosahexaenoic acid; VLC n-3 PUFA, very long chain n-3 PUFA (EPA+DPA+DHA). \*Data for energy-, fat-, protein- corrected milk yield and milk solids yield were removed from calculations; †Calculated based on published fatty acids composition data. | | | | | | | |

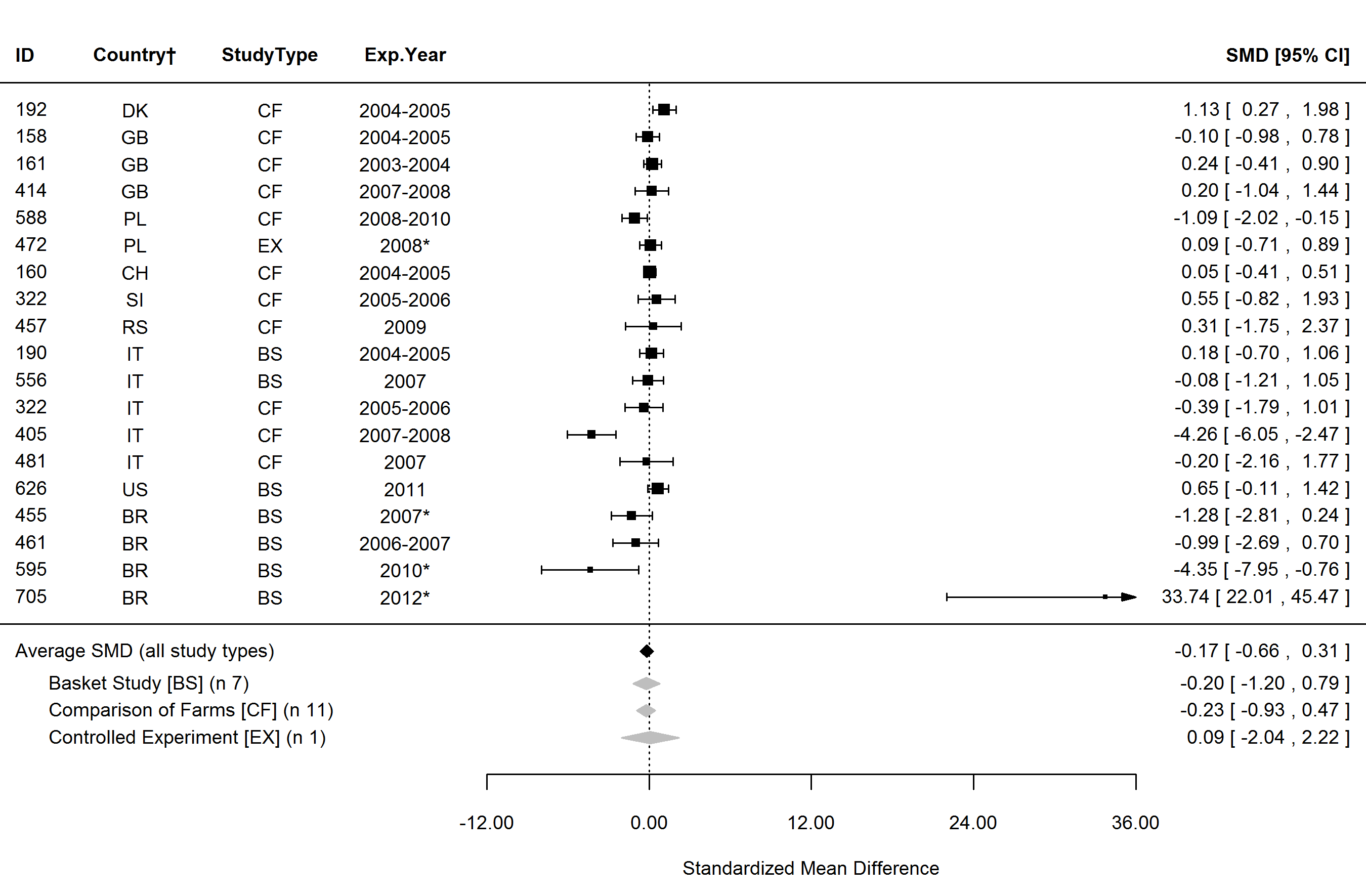
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| **Table S10 cont.** Mean values and confidence intervals (CI) calculated using the data for all papers reporting means of composition parameters shown in Fig. 2 and 3 of the main paper. | | | | | | | |
|  |  |  | **Organic** | |  | **Conventional** | |
| **Parameter** | **Unit** | ***n*** | **Mean** | **95% CI** |  | **Mean** | **95% CI** |
| n-6 FA | mg/g FA | 19 | 22.45 | 20.28, 24.61 |  | 22.79 | 20.47, 25.1 |
| LA (cis-9,12-18:2) | mg/g FA | 22 | 19.33 | 17.93, 20.73 |  | 20.63 | 18.15, 23.1 |
| AA (cis-5,8,11,14-20:4) | mg/g FA | 9 | 1.03 | 0.88, 1.18 |  | 1.24 | 1.06, 1.41 |
| LA/ALA ratio† | - | 19 | 2.76 | 1.95, 3.56 |  | 4.95 | 4.02, 5.88 |
| n-6/n-3 ratio | - | 22 | 3.56 | 1.9, 5.23 |  | 5.42 | 3.42, 7.42 |
| n-3/n-6 ratio | - | 23 | 0.42 | 0.34, 0.5 |  | 0.26 | 0.2, 0.31 |
| α-tocopherol | µg/g fat | 16 | 21.85 | 17.55, 26.15 |  | 20.13 | 16, 24.26 |
| Carotenoids | µg/g fat | 4 | 6.70 | 4.26, 9.15 |  | 6.75 | 2.89, 10.61 |
| β-carotene | µg/g fat | 13 | 5.37 | 4.3, 6.45 |  | 4.78 | 3.56, 5.99 |
| Lutein | µg/g fat | 5 | 0.56 | 0.36, 0.76 |  | 0.47 | 0.11, 0.82 |
| Zeaxanthin | µg/g fat | 5 | 0.23 | 0, 0.47 |  | 0.24 | -0.08, 0.56 |
| Iodine (I) | µg/L | 7 | 147.32 | 87.65, 207 |  | 247.63 | 153.04, 342.22 |
| Iron (Fe) | mg/kg | 9 | 1.03 | 0.38, 1.68 |  | 0.98 | 0.26, 1.71 |
| Selenium (Se) | µg/kg | 8 | 13.84 | 11.25, 16.42 |  | 17.61 | 10.85, 24.37 |
| Urea\* | mg/kg | 10 | 218.97 | 205.65, 232.3 |  | 237.30 | 210.29, 264.3 |
| SCC | cells/ml ×103 | 47 | 218.62 | 177.22, 260.01 |  | 211.06 | 164.87, 257.25 |
| *n*, number of data points included in the comparison; MPD, mean percentage difference; FA, fatty acids; LA, linoleic acid; AA, arachidonic acid; ALA, α-linolenic acid; SCC, somatic cell count. \*One outlying value (1000 times greater than other values) was removed; †Calculated based on published fatty acids composition data. | | | | | | | |

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| **Table S11.** Meta-analysis results for addition composition parameters for which significant differences were detected by the standard meta-analysis or one of the sensitivity analyses (see also Appendix Table A1 and A2 for results). | | | | | | | | | | | | | |
|  | **Standard meta-analysis** | | | | | | |  | **Sensitivity analysis 1** | | | | |
| **Parameter** | ***n*** | **SMD** | **95% CI** | ***P***\* | **Heterogen.**† | **MPD**‡ | **95% CI** |  | ***n*** | **Ln ratio**§ | ***P***\* | **MPD**‡ | **95% CI** |
| Fat | 31 | -0.29 | -0.63, 0.05 | 0.092 | Yes (85%) | -1.37 | -3.66, 0.91 |  | 58 | 4.60 | 0.329 | -0.45 | -2.32, 1.43 |
| Protein | 29 | -0.17 | -0.55, 0.21 | 0.368 | Yes (88%) | -0.24 | -1.80, 1.33 |  | 56 | 4.60 | 0.146 | -0.64 | -1.84, 0.56 |
| Solids | 8 | 0.64 | -0.23, 1.52 | 0.149 | Yes (86%) | 1.05 | -0.45, 2.55 |  | 13 | 4.62 | 0.022 | 1.50 | 0.11, 2.89 |
| Solids (no-fat) | 4 | 0.24 | -0.03, 0.51 | 0.083 | No (0%) | 1.37 | -0.75, 3.49 |  | 7 | 4.62 | 0.094 | 1.08 | -0.30, 2.47 |
| Free fatty acids | - | - | - | - | - | - | - |  | 3 | 4.55 | 0.247 | -5.91 | -13.97, 2.15 |
| 8:0 (caprylic acid) | 9 | -0.03 | -0.64, 0.59 | 0.936 | Yes (81%) | -1.44 | -7.56, 4.68 |  | 16 | 4.64 | 0.123 | 3.64 | -2.42, 9.70 |
| 15:0 (pentadecanoic acid) | 8 | 1.61 | -0.39, 3.60 | 0.115 | Yes (98%) | 7.15 | -0.26, 14.56 |  | 13 | 4.70 | 0.002 | 10.24 | 5.09, 15.39 |
| 17:0 (heptadecanoic acid) | 9 | 0.72 | -0.45, 1.89 | 0.226 | Yes (95%) | 9.71 | -2.09, 21.52 |  | 11 | 4.69 | 0.010 | 9.87 | 0.26, 19.48 |
| 20:0 (arachidic acid) | 4 | 0.73 | -0.76, 2.22 | 0.336 | Yes (96%) | 13.64 | -2.34, 29.61 |  | 9 | 4.70 | 0.042 | 10.72 | 0.40, 21.05 |
| SRR/RRR | 3 | -3.27 | -6.81, 0.28 | 0.071 | Yes (93%) | -269.48 | -552.49, 13.53 |  | 4 | 3.63 | 0.064 | -216.60 | -441.96, 8.76 |
| 22:0 (behenic acid) | 3 | 1.27 | -0.85, 3.39 | 0.239 | Yes (94%) | 30.88 | -7.82, 69.59 |  | 7 | 4.75 | 0.158 | 17.70 | -12.19, 47.59 |
| 24:0 (lignoceric acid) | - | - | - | - | - | - | - |  | 5 | 4.78 | 0.065 | 20.84 | 2.57, 39.11 |
| *n*, number of data points included in the comparison; SMD, standardised mean difference; MPD, mean percentage difference; SRR/RRR, Phytanic acid diastereomers ratio. \**P* value <0.05 indicates significance of the difference in composition between organic and conventional milk; †Heterogeneity and the I2 Statistic; ‡Magnitude of difference between organic (ORG) and conventional (CONV) samples (value <0 indicate higher concentration in CONV, value >0 indicate higher concentration in ORG); §Ln ratio = Ln(ORG/CONV × 100%). | | | | | | | | | | | | | |

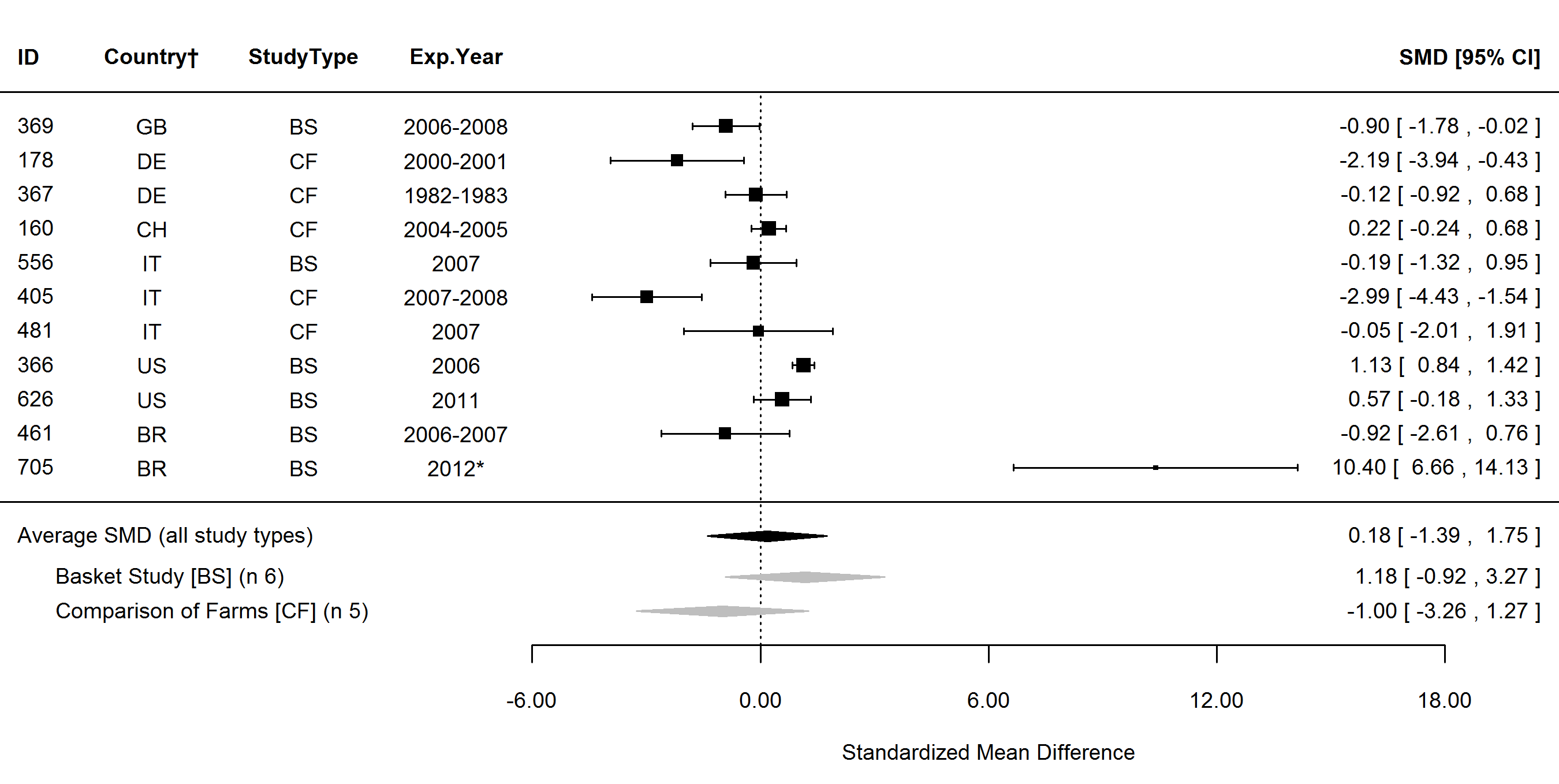
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| **Table S11 cont.** Meta-analysis results for addition composition parameters for which significant differences were detected by the standard meta-analysis or one of the sensitivity analyses (see also Appendix Table A1 and A2 for results). | | | | | | | | | | | | | |
|  | **Standard meta-analysis** | | | | | | |  | **Sensitivity analysis 1** | | | | |
| **Parameter** | ***n*** | **SMD** | **95% CI** | ***P***\* | **Heterogen.**† | **MPD**‡ | **95% CI** |  | ***n*** | **Ln ratio**§ | ***P***\* | **MPD**‡ | **95% CI** |
| trans-18:1 | 4 | 0.39 | -0.4, 1.18 | 0.337 | Yes (63%) | 50.43 | -24.94, 125.80 |  | 6 | 4.94 | 0.047 | 49.36 | -0.64, 99.37 |
| cis-9-20:1 | - | - | - | - | - | - | - |  | 3 | 4.84 | 0.247 | 29.26 | -7.76, 66.27 |
| DGLA (cis-8-11-14-C20:3) | - | - | - | - | - | - | - |  | 4 | 4.40 | 0.122 | -23.89 | -40.50, -7.28 |
| GLA (cis-6,9,12-18:3) | 4 | 0.20 | -0.19, 0.59 | 0.311 | No (9%) | 741.67 | -605.31, 2088.65 |  | 7 | 5.29 | 0.032 | 430.60 | -344.65, 1205.84 |
| 18:4 | - | - | - | - | - | - | - |  | 3 | 4.99 | 0.251 | 68.89 | -59.65, 197.43 |
| 2R | - | - | - | - | - | - | - |  | 5 | 4.27 | 0.062 | -46.38 | -86.65, -6.11 |
| 3R | - | - | - | - | - | - | - |  | 6 | 4.81 | 0.032 | 24.75 | 1.59, 47.90 |
| Vitamin A | 4 | -2.59 | -7.81, 2.63 | 0.331 | Yes (99%) | -56.18 | -155.88, 43.53 |  | 10 | 4.43 | 0.019 | -27.31 | -67.22, 12.60 |
| Copper (Cu) | 8 | -0.57 | -1.16, 0.02 | 0.060 | Yes (60%) | -17.26 | -28.43, -6.10 |  | 10 | 4.50 | 0.049 | -12.37 | -25.04, 0.30 |
| Potassium (K) | 4 | 0.30 | -0.02, 0.62 | 0.063 | No (0%) | 4.49 | 1.35, 7.62 |  | 7 | 4.63 | 0.091 | 2.30 | -0.34, 4.94 |
| *n*, number of data points included in the comparison; SMD, standardised mean difference; MPD, mean percentage difference; DGLA, dihomo-γ-linolenic acid; GLA, γ-linolenic acid; 2R, synthetic isomers of α-tocopherol; 3R, natural isomers of α-tocopherol. \**P* value <0.05 indicates significance of the difference in composition between organic and conventional milk; †Heterogeneity and the I2 Statistic; ‡Magnitude of difference between organic (ORG) and conventional (CONV) samples (value <0 indicate higher concentration in CONV, value >0 indicate higher concentration in ORG); §Ln ratio = Ln(ORG/CONV × 100%). | | | | | | | | | | | | | |



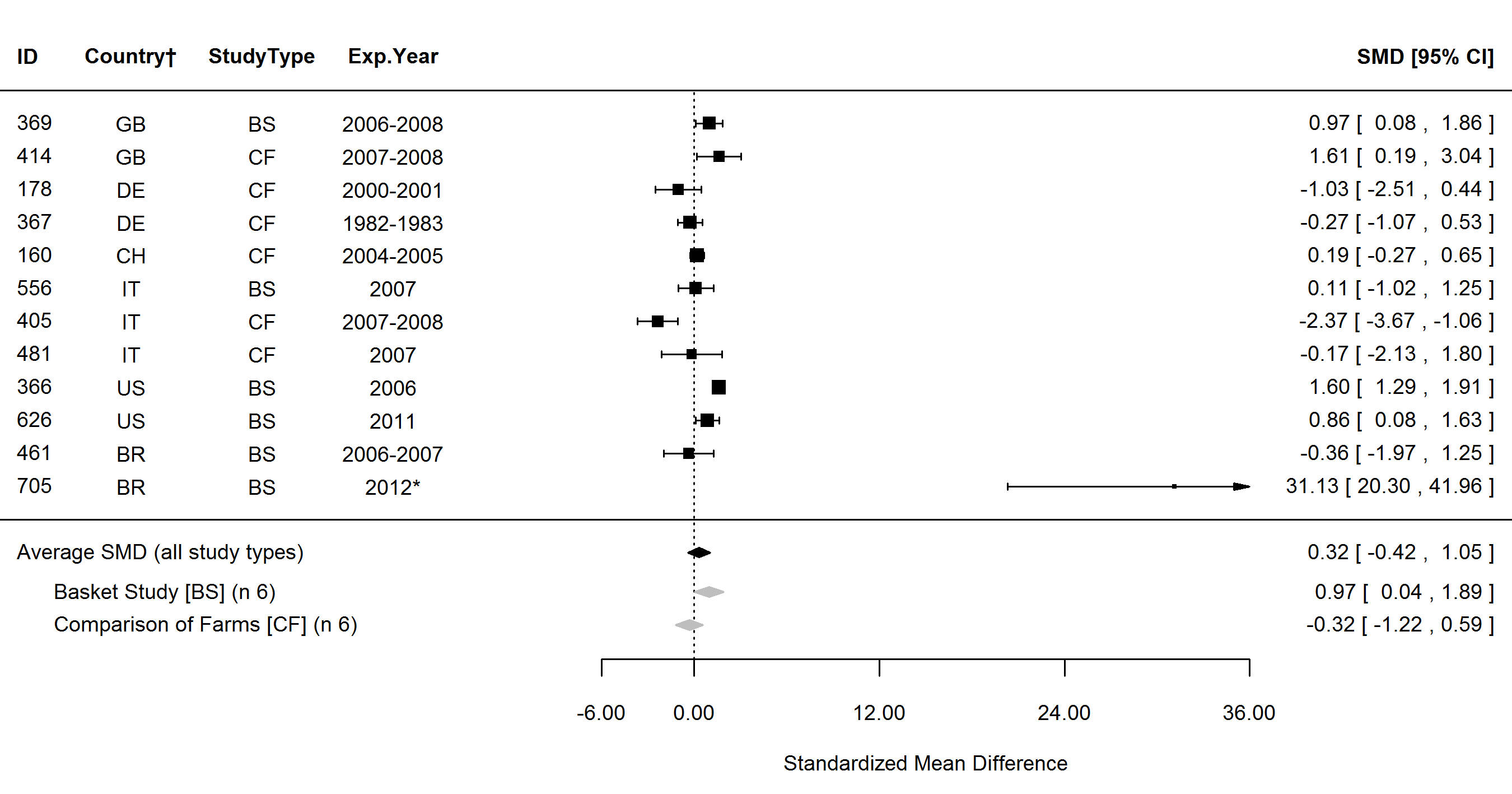
**Figure S3.** Forest plot showing the results of studies examining the milk yield in organic and conventional bovine milk. The figure shows the standardised mean differences (SMDs) with 95% confidence intervals, for studies included in standard meta-analysis. The estimated average SMD for all studies and SMDs for different study types are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic milk. ID, Paper unique identification number (see supplementary Table S1 for references); CF, comparison of farms, BS, basket study, EX, controlled experiment. \*No information about the experimental year (estimated as publication year -2), †Country codes according ISO 3166-2 (see [*http://www.iso.org/iso/home/standards/country\_codes.htm*](http://www.iso.org/iso/home/standards/country_codes.htm)).



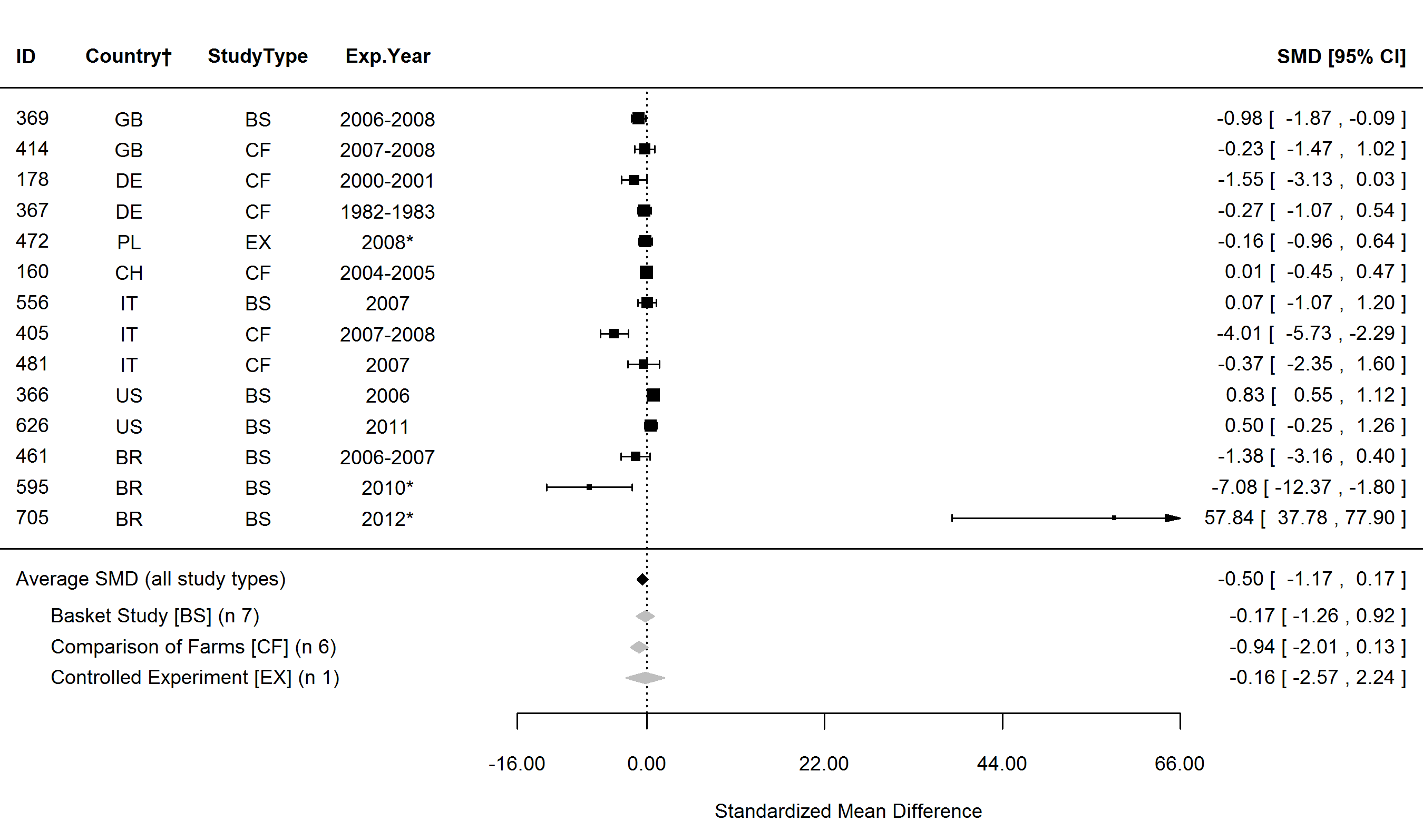
**Figure S4.** Forest plot showing the results of studies examining the saturated fatty acids (SFA) in organic and conventional bovine milk. The figure shows the standardised mean differences (SMDs) with 95% confidence intervals, for studies included in standard meta-analysis. The estimated average SMD for all studies and SMDs for different study types are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic milk. ID, Paper unique identification number (see supplementary Table S1 for references); CF, comparison of farms, BS, basket study, EX, controlled experiment. \*No information about the experimental year (estimated as publication year -2), †Country codes according ISO 3166-2 (see [*http://www.iso.org/iso/home/standards/country\_codes.htm*](http://www.iso.org/iso/home/standards/country_codes.htm)).



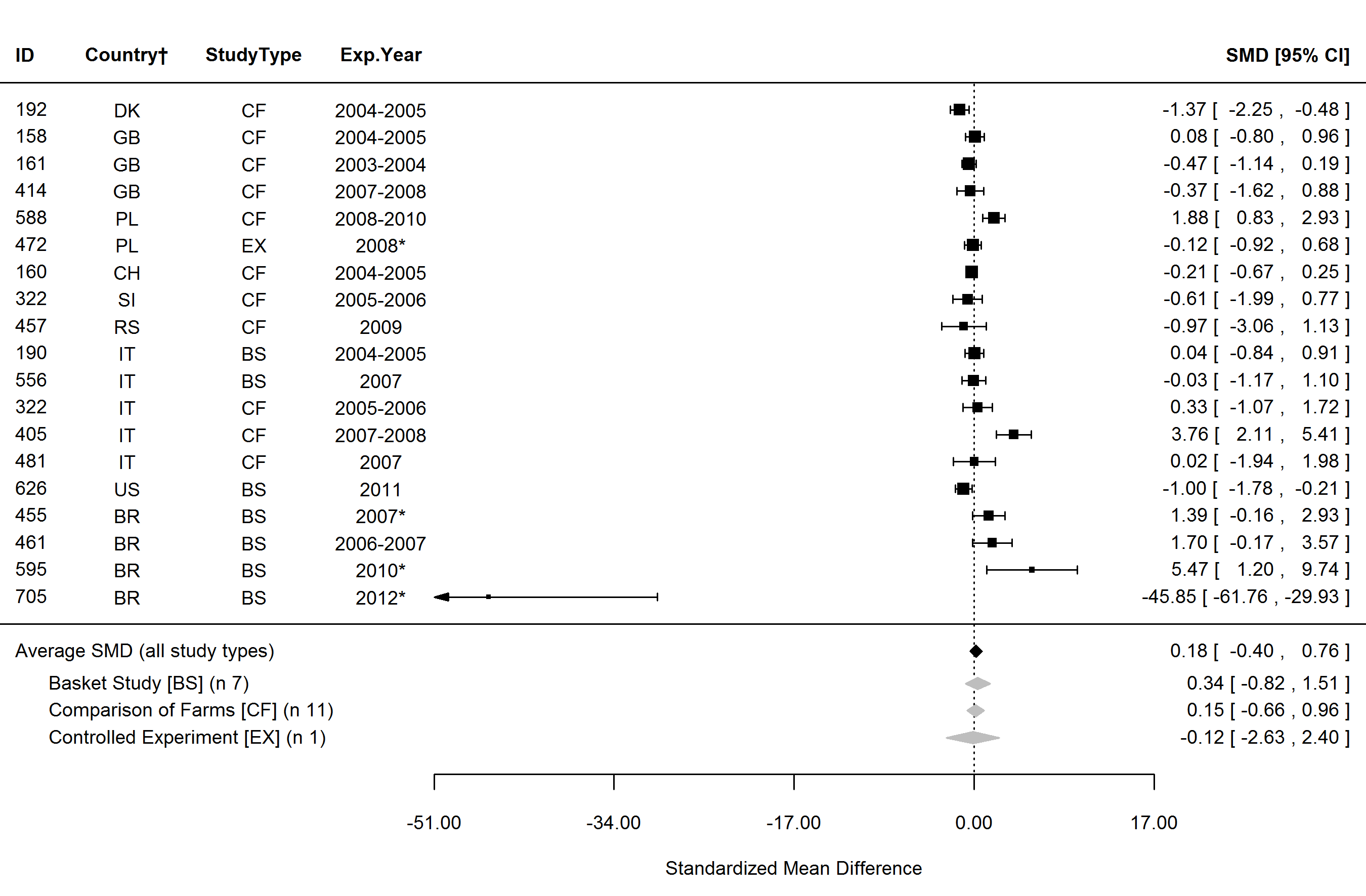
**Figure S5.** Forest plot showing the results of studies examining the 12:0 fatty acid (lauric acid) in organic and conventional bovine milk. The figure shows the standardised mean differences (SMDs) with 95% confidence intervals, for studies included in standard meta-analysis. The estimated average SMD for all studies and SMDs for different study types are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic milk. ID, Paper unique identification number (see supplementary Table S1 for references); CF, comparison of farms, BS, basket study, EX, controlled experiment. \*No information about the experimental year (estimated as publication year -2), †Country codes according ISO 3166-2 (see [*http://www.iso.org/iso/home/standards/country\_codes.htm*](http://www.iso.org/iso/home/standards/country_codes.htm)).



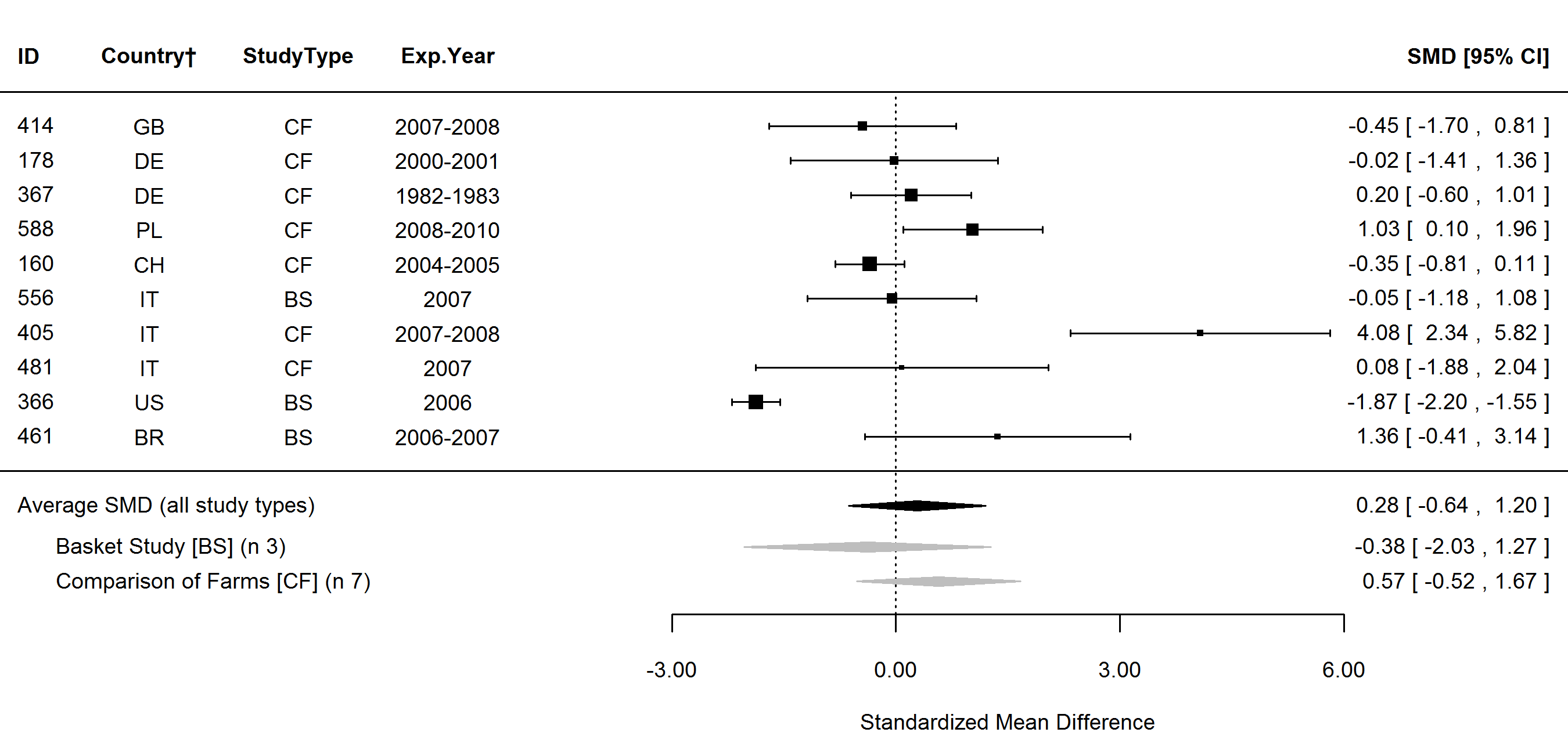
**Figure S6.** Forest plot showing the results of studies examining the 14:0 fatty acid (myristic acid) in organic and conventional bovine milk. The figure shows the standardised mean differences (SMDs) with 95% confidence intervals, for studies included in standard meta-analysis. The estimated average SMD for all studies and SMDs for different study types are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic milk. ID, Paper unique identification number (see supplementary Table S1 for references); CF, comparison of farms, BS, basket study, EX, controlled experiment. \*No information about the experimental year (estimated as publication year -2), †Country codes according ISO 3166-2 (see [*http://www.iso.org/iso/home/standards/country\_codes.htm*](http://www.iso.org/iso/home/standards/country_codes.htm)).



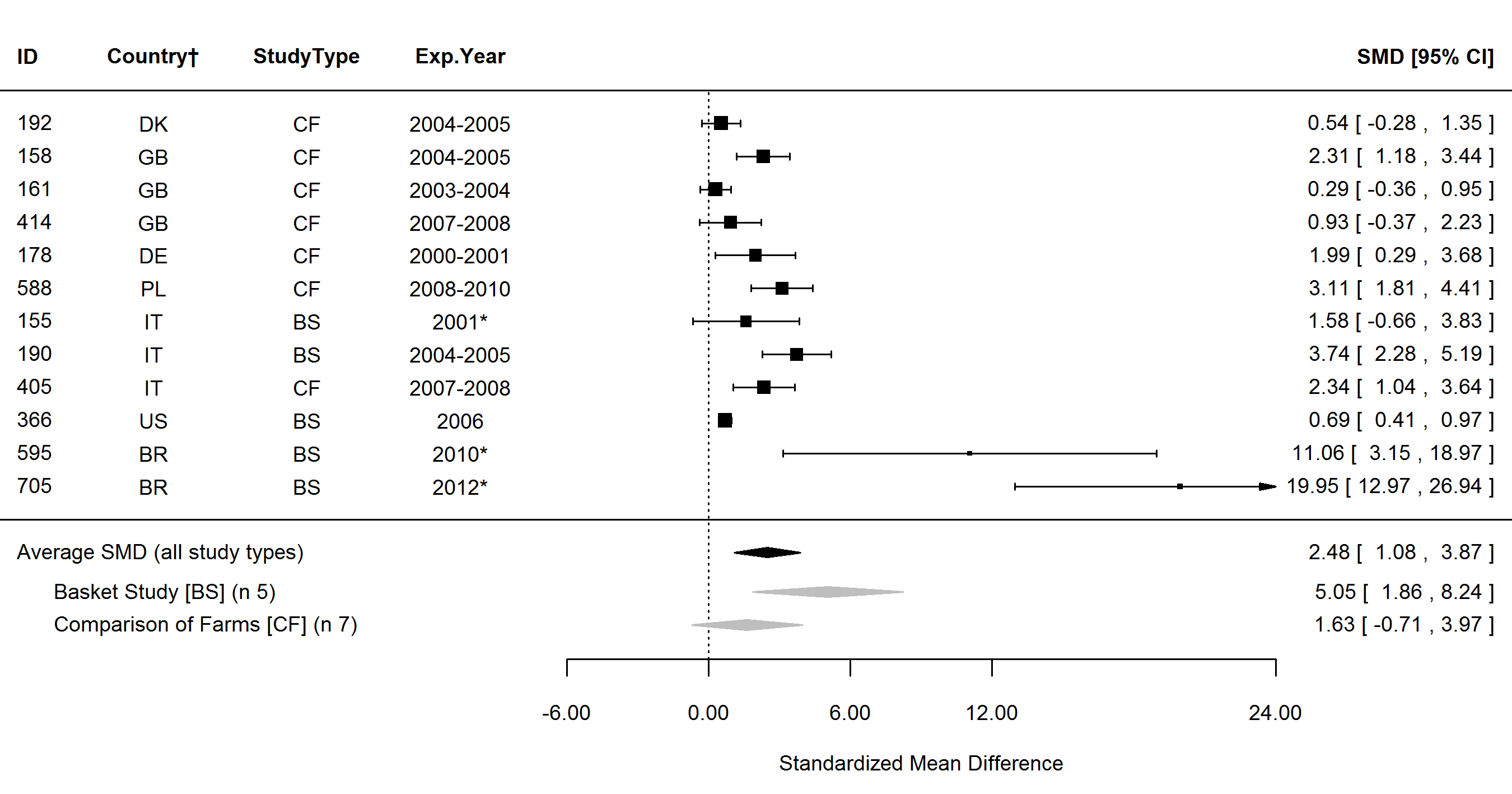
**Figure S7.** Forest plot showing the results of studies examining the 16:0 fatty acid (palmitic acid) in organic and conventional bovine milk. The figure shows the standardised mean differences (SMDs) with 95% confidence intervals, for studies included in standard meta-analysis. The estimated average SMD for all studies and SMDs for different study types are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic milk. ID, Paper unique identification number (see supplementary Table S1 for references); CF, comparison of farms, BS, basket study, EX, controlled experiment. \*No information about the experimental year (estimated as publication year -2), †Country codes according ISO 3166-2 (see [*http://www.iso.org/iso/home/standards/country\_codes.htm*](http://www.iso.org/iso/home/standards/country_codes.htm)).



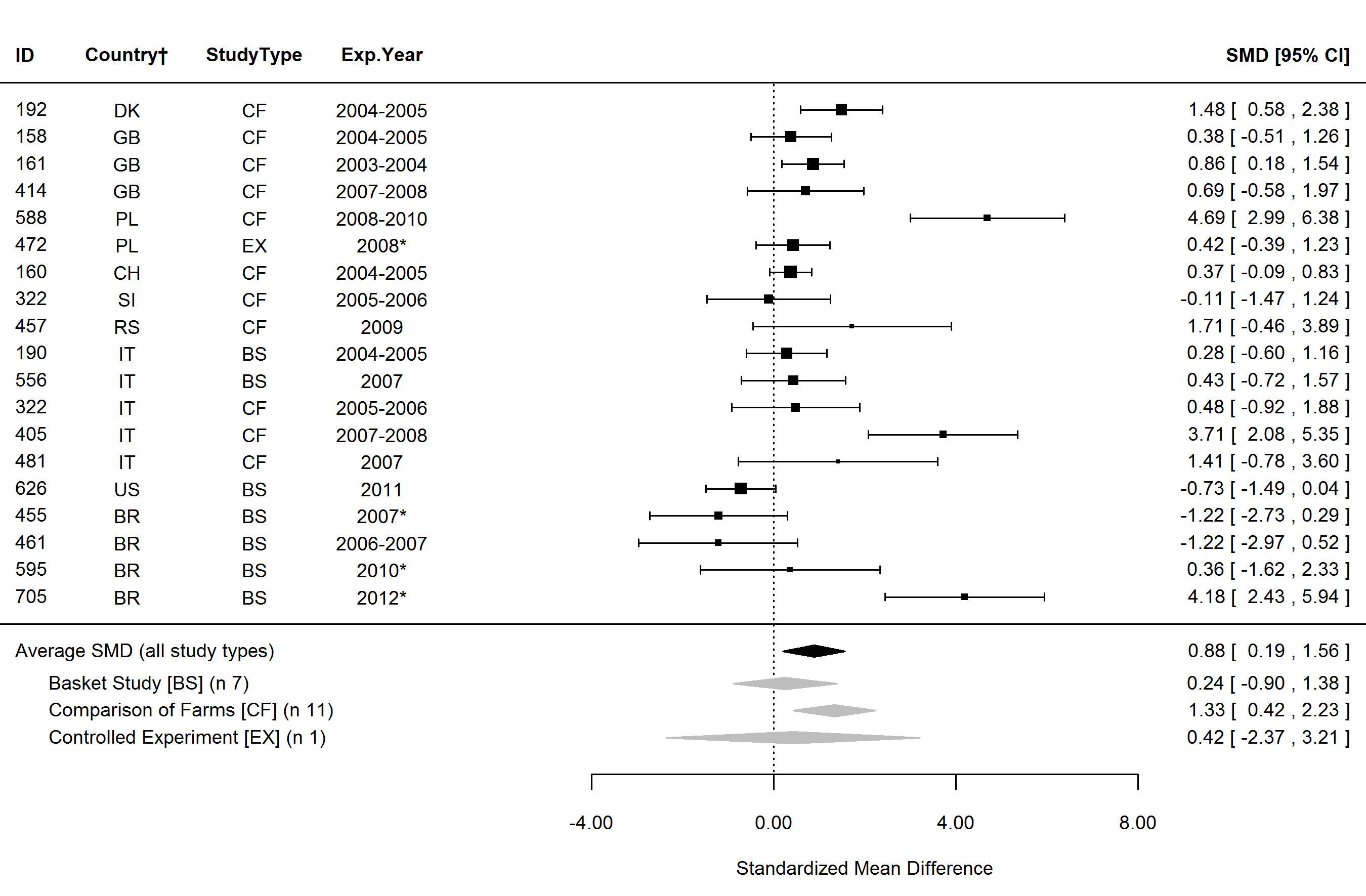
**Figure S8.** Forest plot showing the results of studies examining the monounsaturated fatty acids (MUFA) in organic and conventional bovine milk. The figure shows the standardised mean differences (SMDs) with 95% confidence intervals, for studies included in standard meta-analysis. The estimated average SMD for all studies and SMDs for different study types are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic milk. ID, Paper unique identification number (see supplementary Table S1 for references); CF, comparison of farms, BS, basket study, EX, controlled experiment. \*No information about the experimental year (estimated as publication year -2), †Country codes according ISO 3166-2 (see [*http://www.iso.org/iso/home/standards/country\_codes.htm*](http://www.iso.org/iso/home/standards/country_codes.htm)).



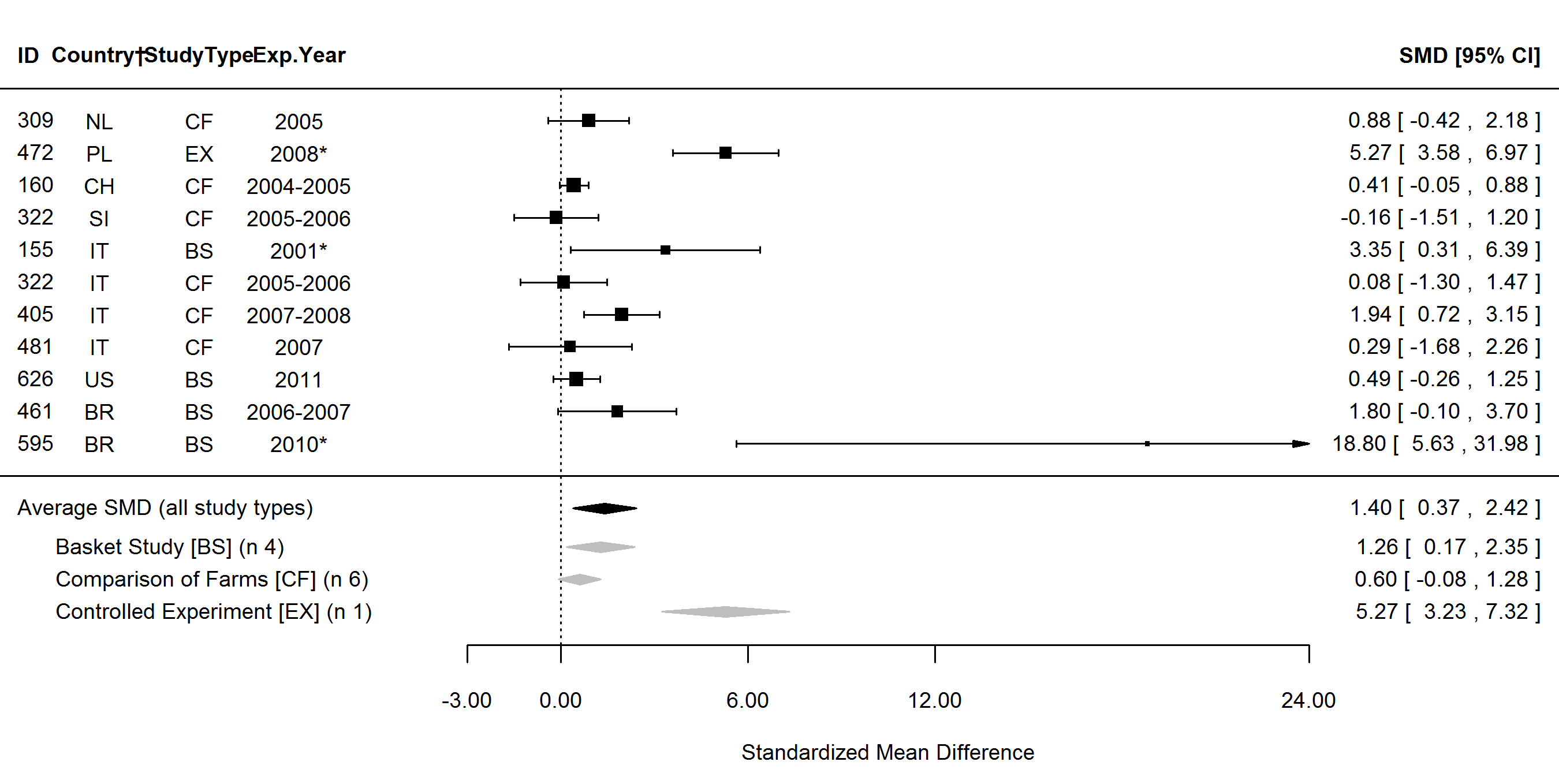
**Figure S9.** Forest plot showing the results of studies examining the oleic fatty acid (*cis*-9-18:1, OA) in organic and conventional bovine milk. The figure shows the standardised mean differences (SMDs) with 95% confidence intervals, for studies included in standard meta-analysis. The estimated average SMD for all studies and SMDs for different study types are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic milk. ID, Paper unique identification number (see supplementary Table S1 for references); CF, comparison of farms, BS, basket study, EX, controlled experiment. \*No information about the experimental year (estimated as publication year -2), †Country codes according ISO 3166-2 (see [*http://www.iso.org/iso/home/standards/country\_codes.htm*](http://www.iso.org/iso/home/standards/country_codes.htm)).



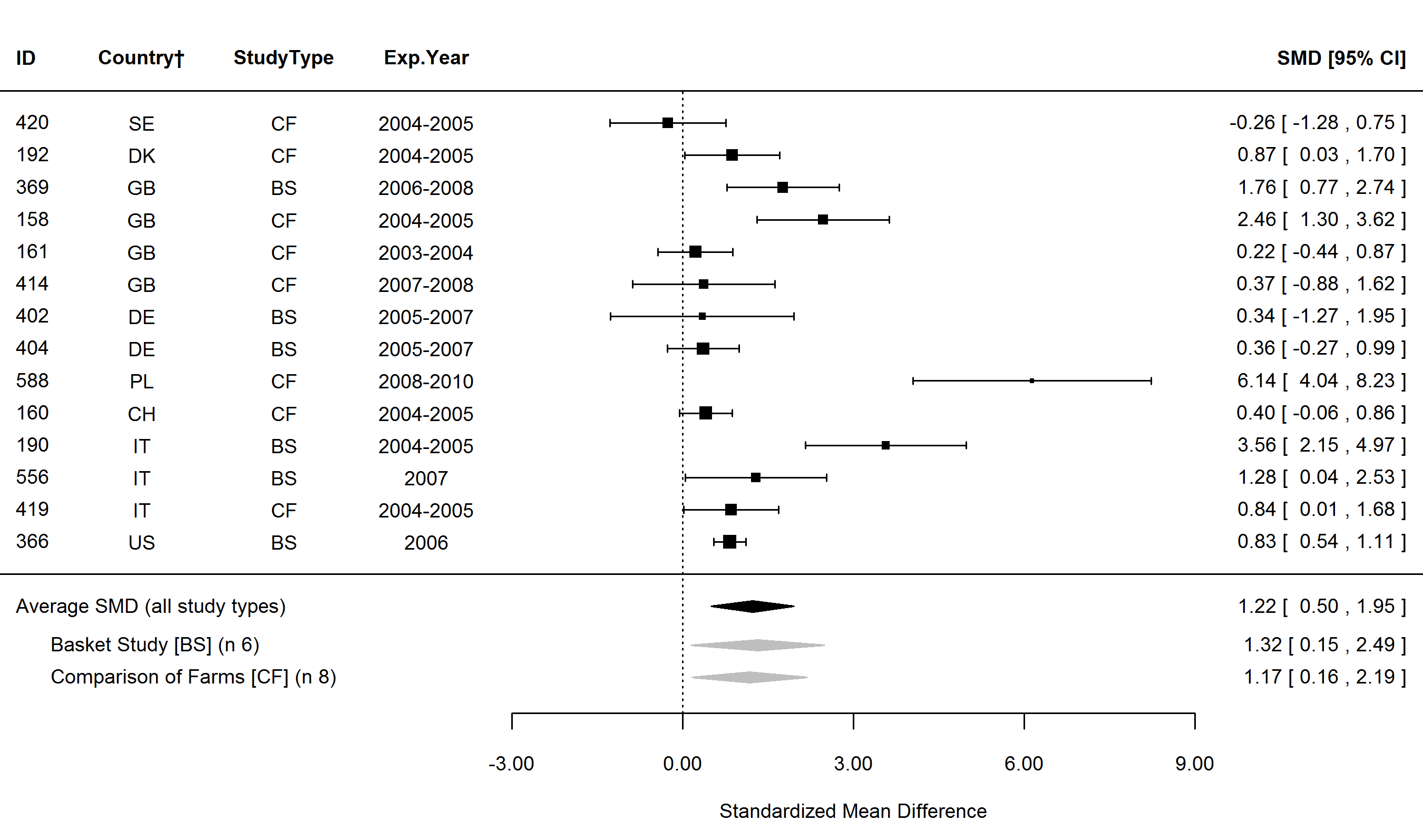
**Figure S10.** Forest plot showing the results of studies examining the vaccenic fatty acid (*trans*-11-18:1, VA) in organic and conventional bovine milk. The figure shows the standardised mean differences (SMDs) with 95% confidence intervals, for studies included in standard meta-analysis. The estimated average SMD for all studies and SMDs for different study types are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic milk. ID, Paper unique identification number (see supplementary Table S1 for references); CF, comparison of farms, BS, basket study, EX, controlled experiment. \*No information about the experimental year (estimated as publication year -2), †Country codes according ISO 3166-2 (see [*http://www.iso.org/iso/home/standards/country\_codes.htm*](http://www.iso.org/iso/home/standards/country_codes.htm)).



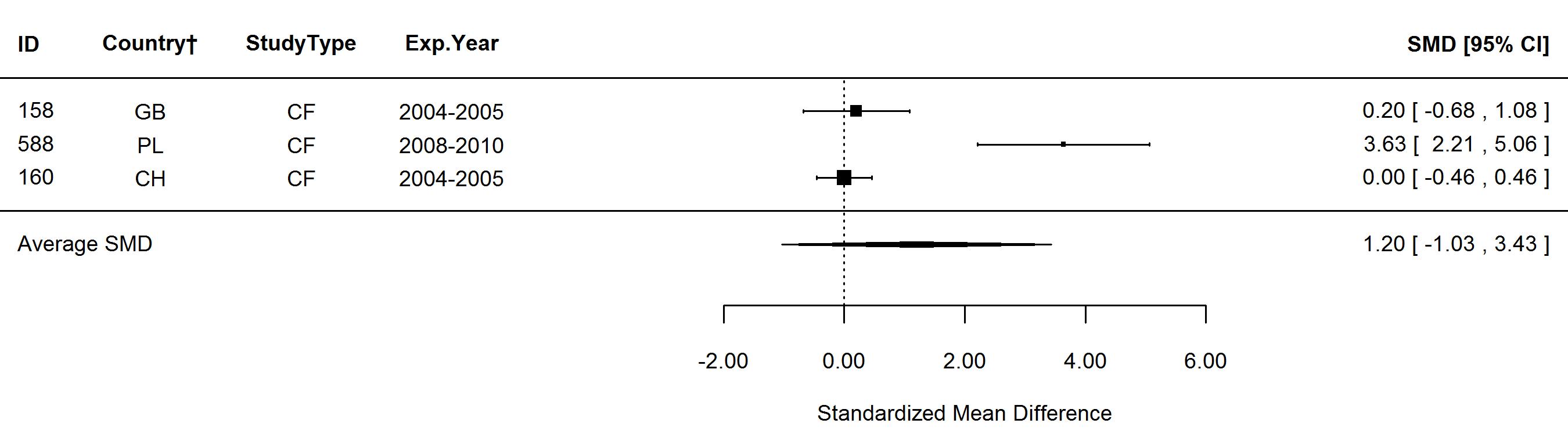
**Figure S11.** Forest plot showing the results of studies examining the polyunsaturated fatty acids (PUFA) in organic and conventional bovine milk. The figure shows the standardised mean differences (SMDs) with 95% confidence intervals, for studies included in standard meta-analysis. The estimated average SMD for all studies and SMDs for different study types are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic milk. ID, Paper unique identification number (see supplementary Table S1 for references); CF, comparison of farms, BS, basket study, EX, controlled experiment. \*No information about the experimental year (estimated as publication year -2), †Country codes according ISO 3166-2 (see [*http://www.iso.org/iso/home/standards/country\_codes.htm*](http://www.iso.org/iso/home/standards/country_codes.htm)).



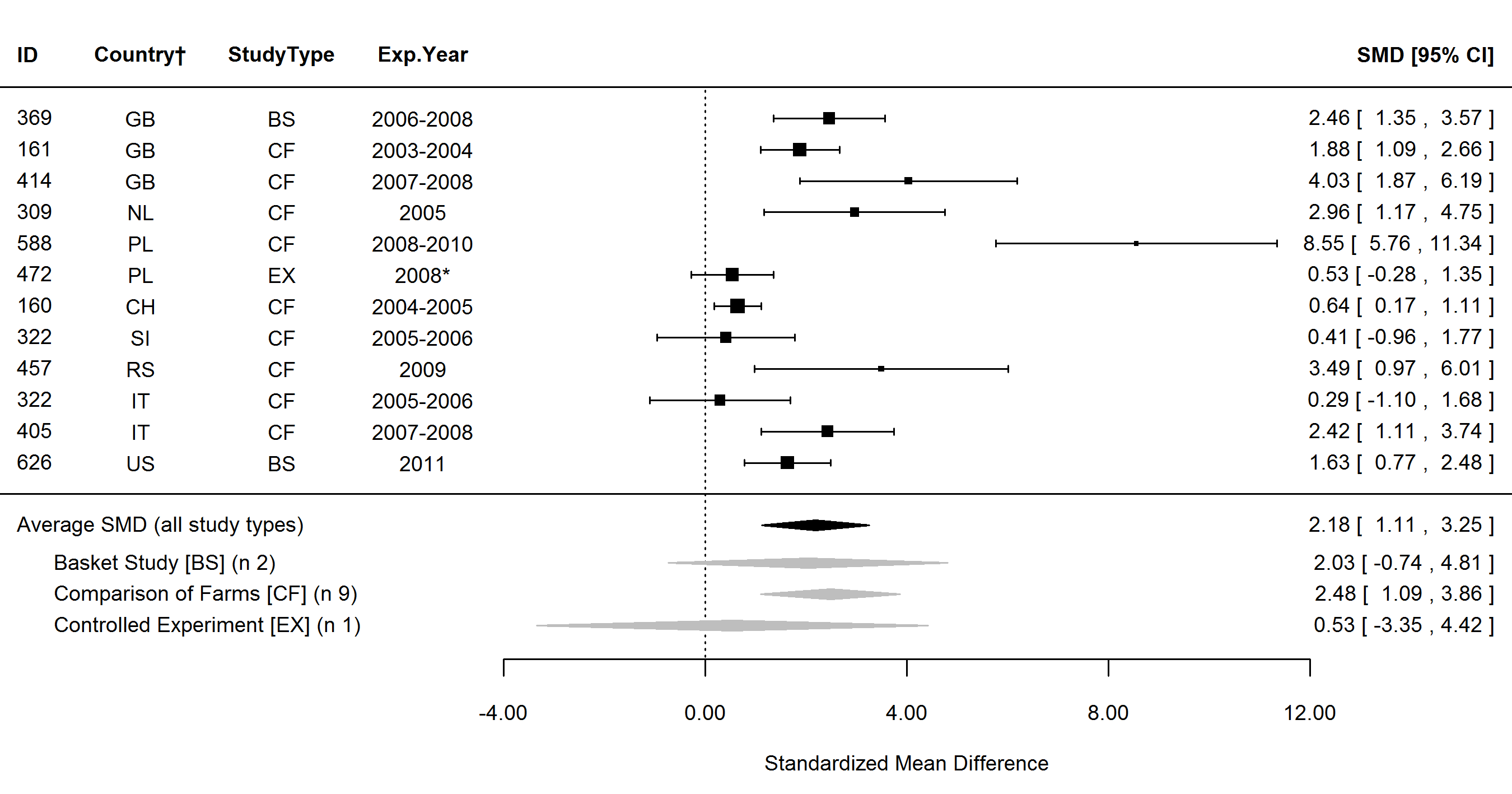
**Figure S12.** Forest plot showing the results of studies examining the total conjugated linoleic fatty acids (CLA total) in organic and conventional bovine milk. The figure shows the standardised mean differences (SMDs) with 95% confidence intervals, for studies included in standard meta-analysis. The estimated average SMD for all studies and SMDs for different study types are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic milk. ID, Paper unique identification number (see supplementary Table S1 for references); CF, comparison of farms, BS, basket study, EX, controlled experiment. \*No information about the experimental year (estimated as publication year -2), †Country codes according ISO 3166-2 (see [*http://www.iso.org/iso/home/standards/country\_codes.htm*](http://www.iso.org/iso/home/standards/country_codes.htm)).



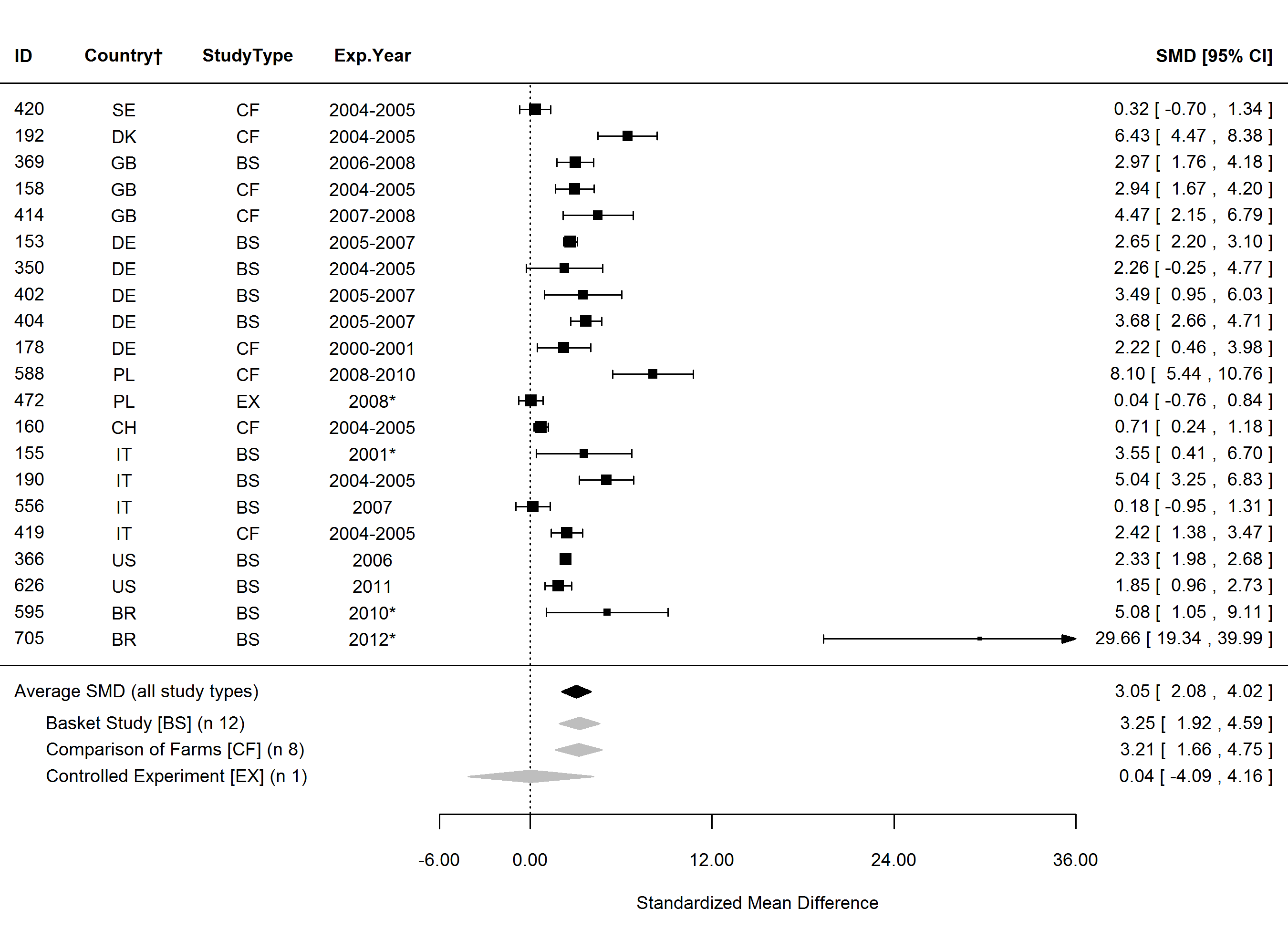
**Figure S13.** Forest plot showing the results of studies examining the *cis*-9-*trans*-11-18:2 conjugated linoleic fatty acids (CLA) in organic and conventional bovine milk. The figure shows the standardised mean differences (SMDs) with 95% confidence intervals, for studies included in standard meta-analysis. The estimated average SMD for all studies and SMDs for different study types are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic milk. ID, Paper unique identification number (see supplementary Table S1 for references); CF, comparison of farms, BS, basket study, EX, controlled experiment. \*No information about the experimental year (estimated as publication year -2), †Country codes according ISO 3166-2 (see [*http://www.iso.org/iso/home/standards/country\_codes.htm*](http://www.iso.org/iso/home/standards/country_codes.htm)).



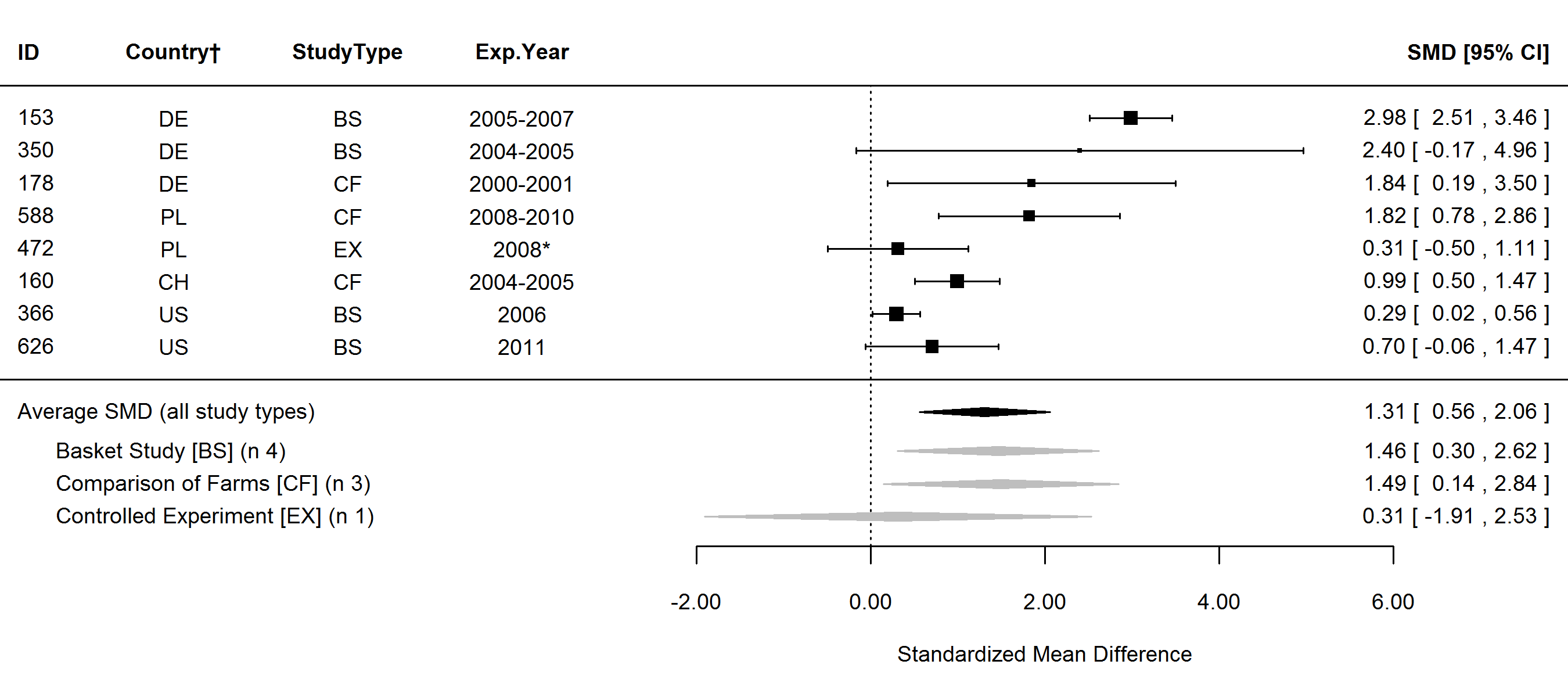
**Figure S14.** Forest plot showing the results of studies examining the *trans*-10-*cis*-12-18:2 conjugated linoleic fatty acids (CLA) in organic and conventional bovine milk. The figure shows the standardised mean differences (SMDs) with 95% confidence intervals, for studies included in standard meta-analysis. The estimated average SMD for all studies and SMDs for different study types are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic milk. ID, Paper unique identification number (see supplementary Table S1 for references); CF, comparison of farms, BS, basket study, EX, controlled experiment. \*No information about the experimental year (estimated as publication year -2), †Country codes according ISO 3166-2 (see [*http://www.iso.org/iso/home/standards/country\_codes.htm*](http://www.iso.org/iso/home/standards/country_codes.htm)).



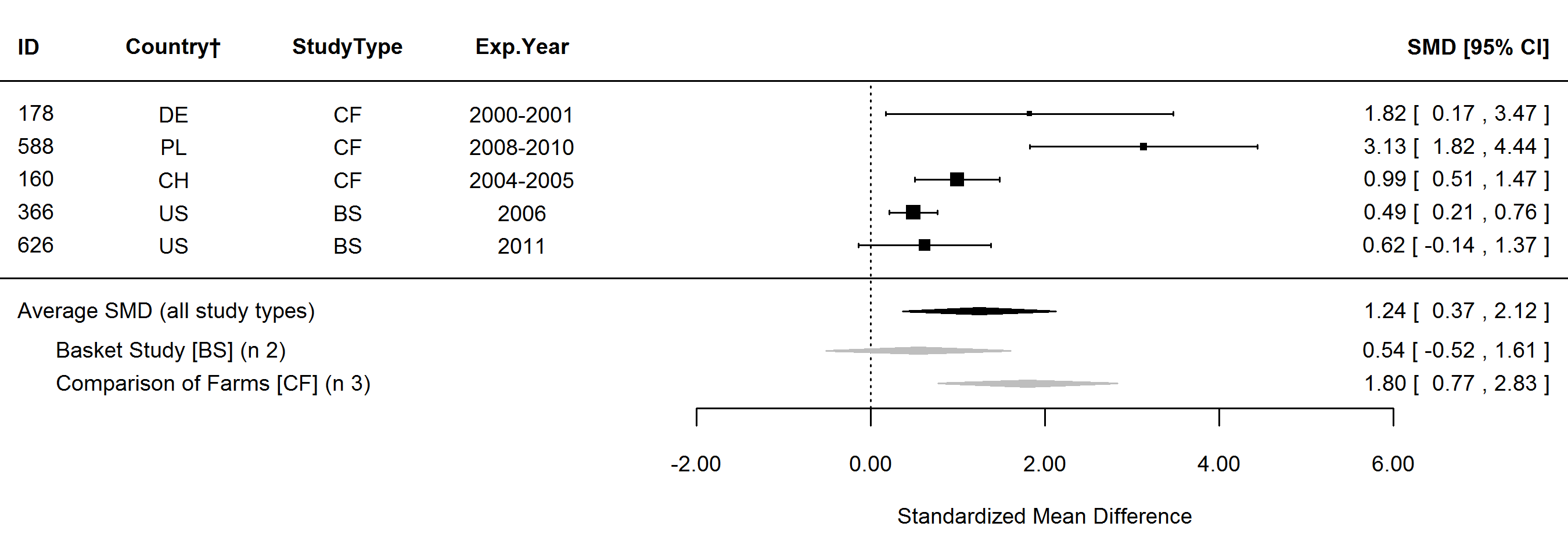
**Figure S15.** Forest plot showing the results of studies examining the omega-3 fatty acids (*n*-3) in organic and conventional bovine milk. The figure shows the standardised mean differences (SMDs) with 95% confidence intervals, for studies included in standard meta-analysis. The estimated average SMD for all studies and SMDs for different study types are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic milk. ID, Paper unique identification number (see supplementary Table S1 for references); CF, comparison of farms, BS, basket study, EX, controlled experiment. \*No information about the experimental year (estimated as publication year -2), †Country codes according ISO 3166-2 (see [*http://www.iso.org/iso/home/standards/country\_codes.htm*](http://www.iso.org/iso/home/standards/country_codes.htm)).



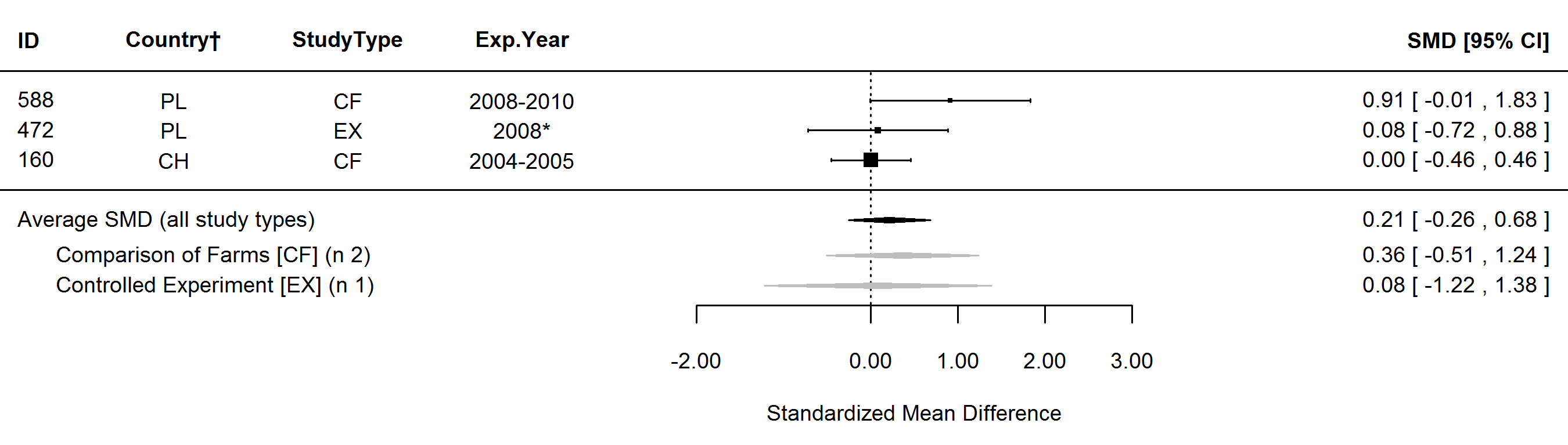
**Figure S16.** Forest plot showing the results of studies examining the α-linolenic fatty acid (*cis*-9,12,15-18:3, ALA) in organic and conventional bovine milk. The figure shows the standardised mean differences (SMDs) with 95% confidence intervals, for studies included in standard meta-analysis. The estimated average SMD for all studies and SMDs for different study types are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic milk. ID, Paper unique identification number (see supplementary Table S1 for references); CF, comparison of farms, BS, basket study, EX, controlled experiment. \*No information about the experimental year (estimated as publication year -2), †Country codes according ISO 3166-2 (see [*http://www.iso.org/iso/home/standards/country\_codes.htm*](http://www.iso.org/iso/home/standards/country_codes.htm)).



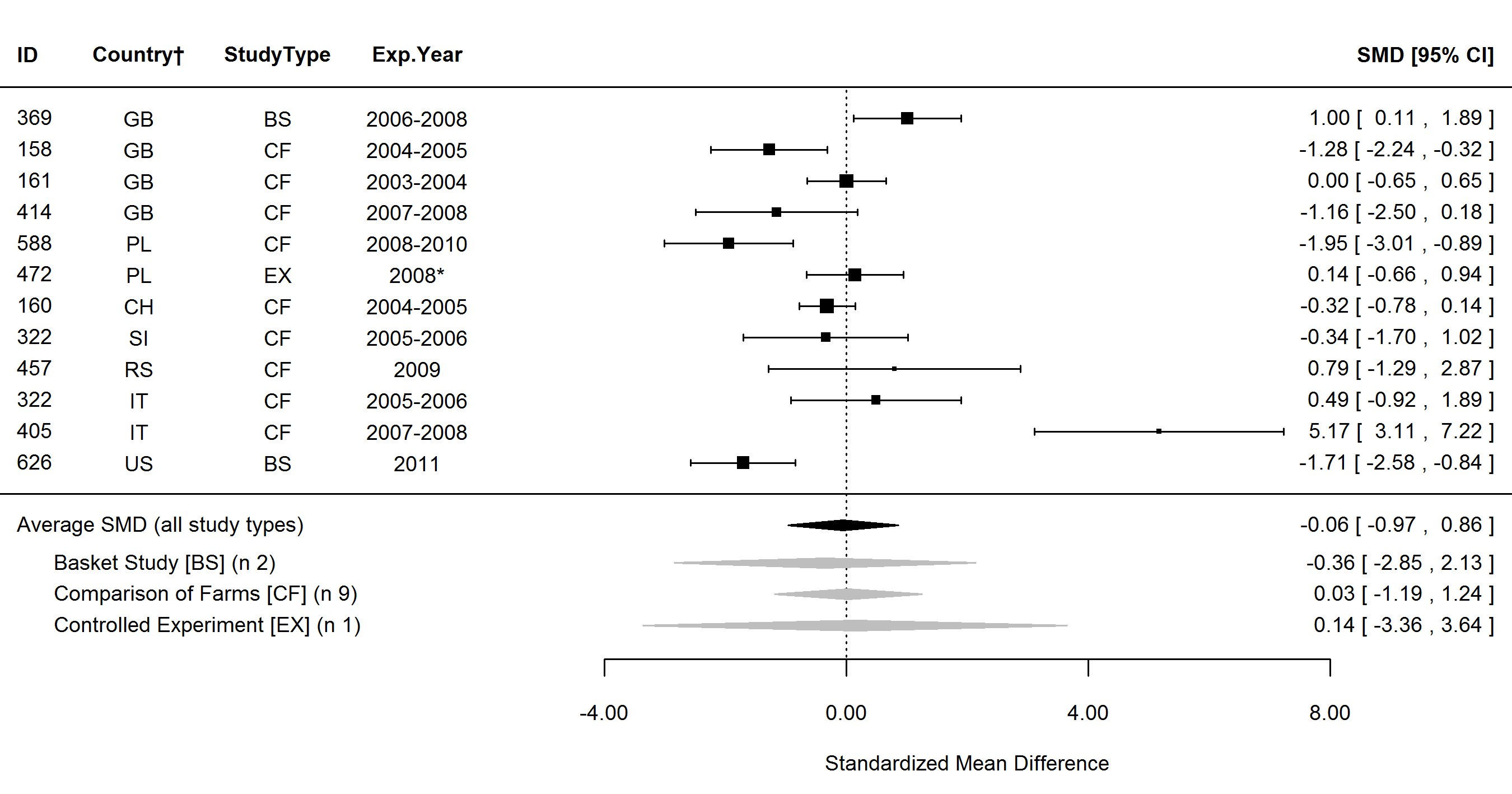
**Figure S17.** Forest plot showing the results of studies examining the eicosapentaenoic fatty acid (*cis*-5,8,11,14,17-20:5, EPA) in organic and conventional bovine milk. The figure shows the standardised mean differences (SMDs) with 95% confidence intervals, for studies included in standard meta-analysis. The estimated average SMD for all studies and SMDs for different study types are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic milk. ID, Paper unique identification number (see supplementary Table S1 for references); CF, comparison of farms, BS, basket study, EX, controlled experiment. \*No information about the experimental year (estimated as publication year -2), †Country codes according ISO 3166-2 (see [*http://www.iso.org/iso/home/standards/country\_codes.htm*](http://www.iso.org/iso/home/standards/country_codes.htm)).



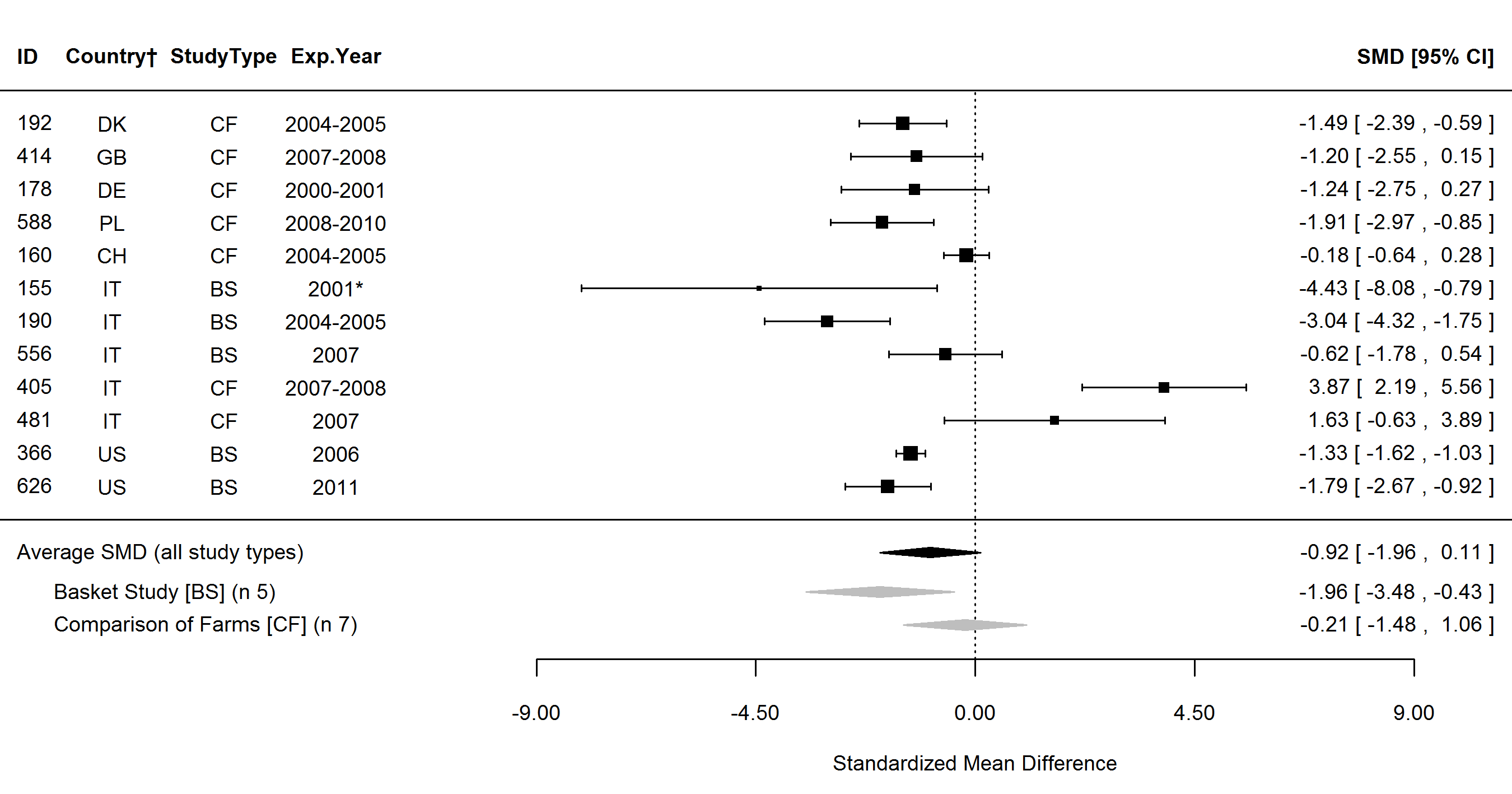
**Figure S18.** Forest plot showing the results of studies examining the docosapentaenoic fatty acid (*cis*-7,10,13,16,19-22:5, DPA) in organic and conventional bovine milk. The figure shows the standardised mean differences (SMDs) with 95% confidence intervals, for studies included in standard meta-analysis. The estimated average SMD for all studies and SMDs for different study types are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic milk. ID, Paper unique identification number (see supplementary Table S1 for references); CF, comparison of farms, BS, basket study, EX, controlled experiment. \*No information about the experimental year (estimated as publication year -2), †Country codes according ISO 3166-2 (see [*http://www.iso.org/iso/home/standards/country\_codes.htm*](http://www.iso.org/iso/home/standards/country_codes.htm)).



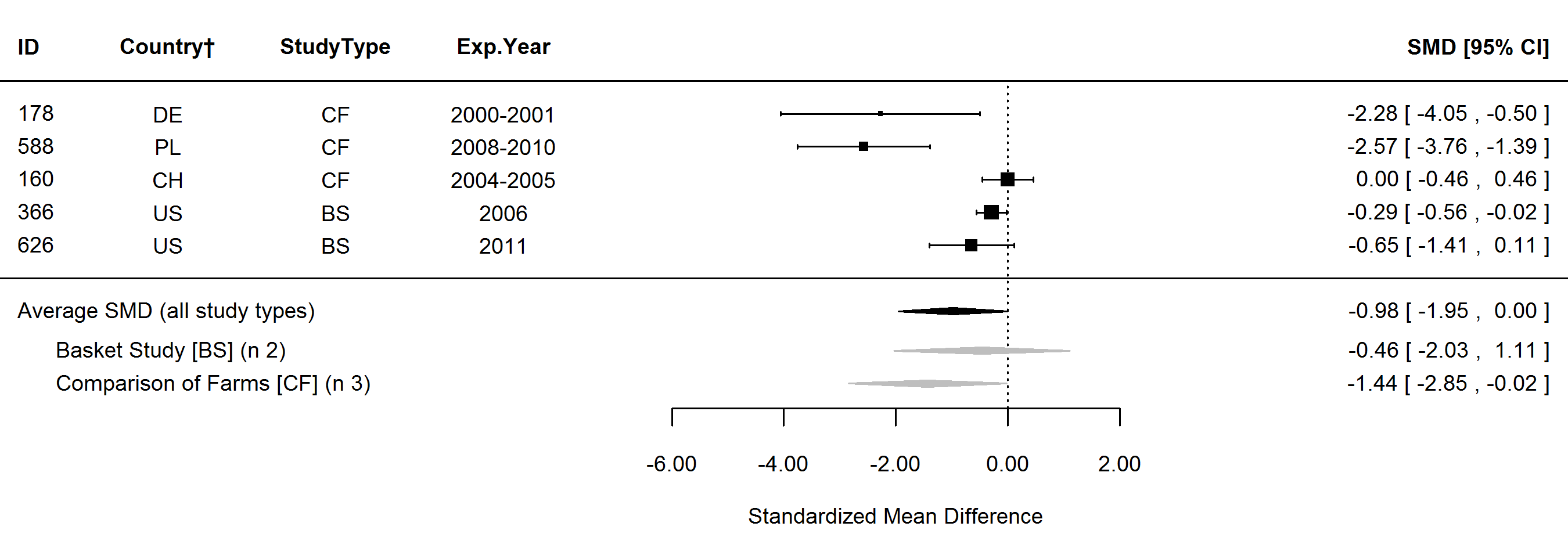
**Figure S19.** Forest plot showing the results of studies examining the docosahexaenoic fatty acid (*cis*-4,7,10,13,16,19-22:6, DHA) in organic and conventional bovine milk. The figure shows the standardised mean differences (SMDs) with 95% confidence intervals, for studies included in standard meta-analysis. The estimated average SMD for all studies and SMDs for different study types are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic milk. ID, Paper unique identification number (see supplementary Table S1 for references); CF, comparison of farms, BS, basket study, EX, controlled experiment. \*No information about the experimental year (estimated as publication year -2), †Country codes according ISO 3166-2 (see [*http://www.iso.org/iso/home/standards/country\_codes.htm*](http://www.iso.org/iso/home/standards/country_codes.htm)).



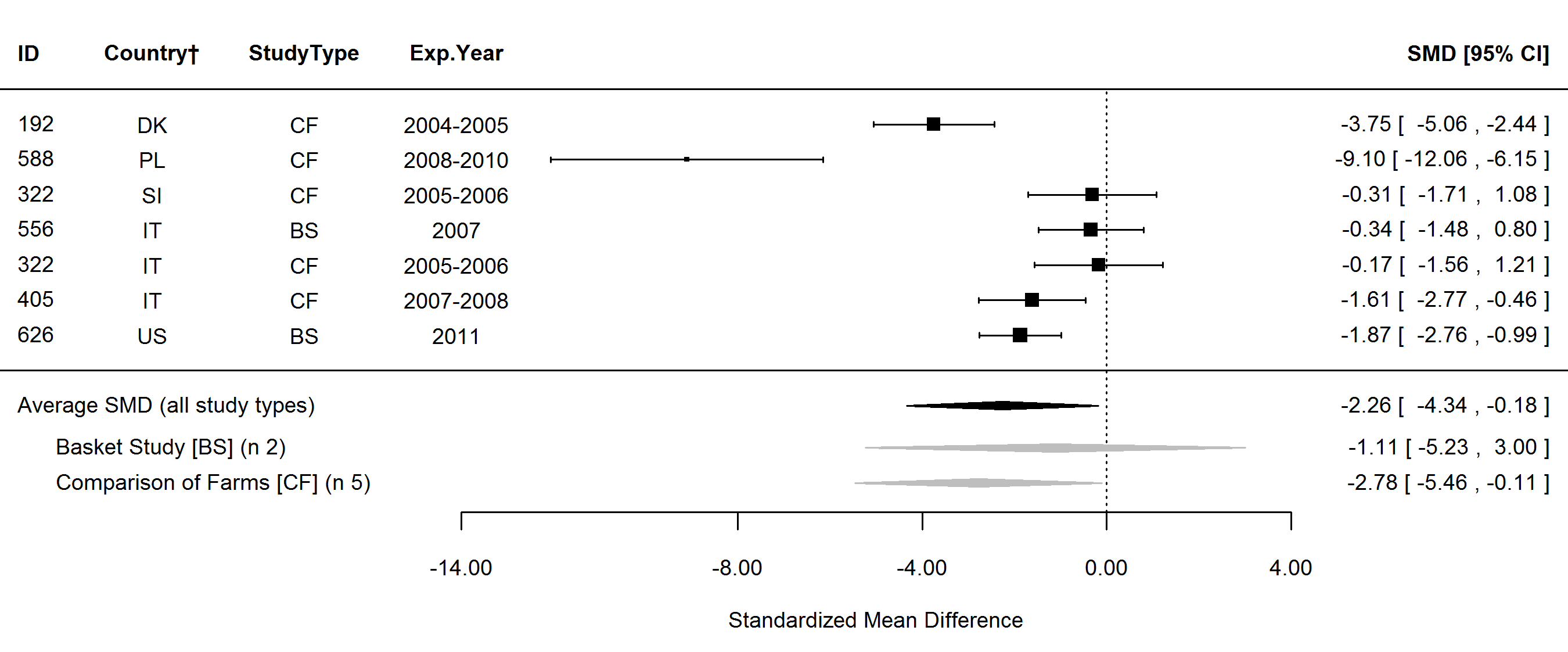
**Figure S20.** Forest plot showing the results of studies examining the omega-6 fatty acids (*n*-6) in organic and conventional bovine milk. The figure shows the standardised mean differences (SMDs) with 95% confidence intervals, for studies included in standard meta-analysis. The estimated average SMD for all studies and SMDs for different study types are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic milk. ID, Paper unique identification number (see supplementary Table S1 for references); CF, comparison of farms, BS, basket study, EX, controlled experiment. \*No information about the experimental year (estimated as publication year -2), †Country codes according ISO 3166-2 (see [*http://www.iso.org/iso/home/standards/country\_codes.htm*](http://www.iso.org/iso/home/standards/country_codes.htm)).



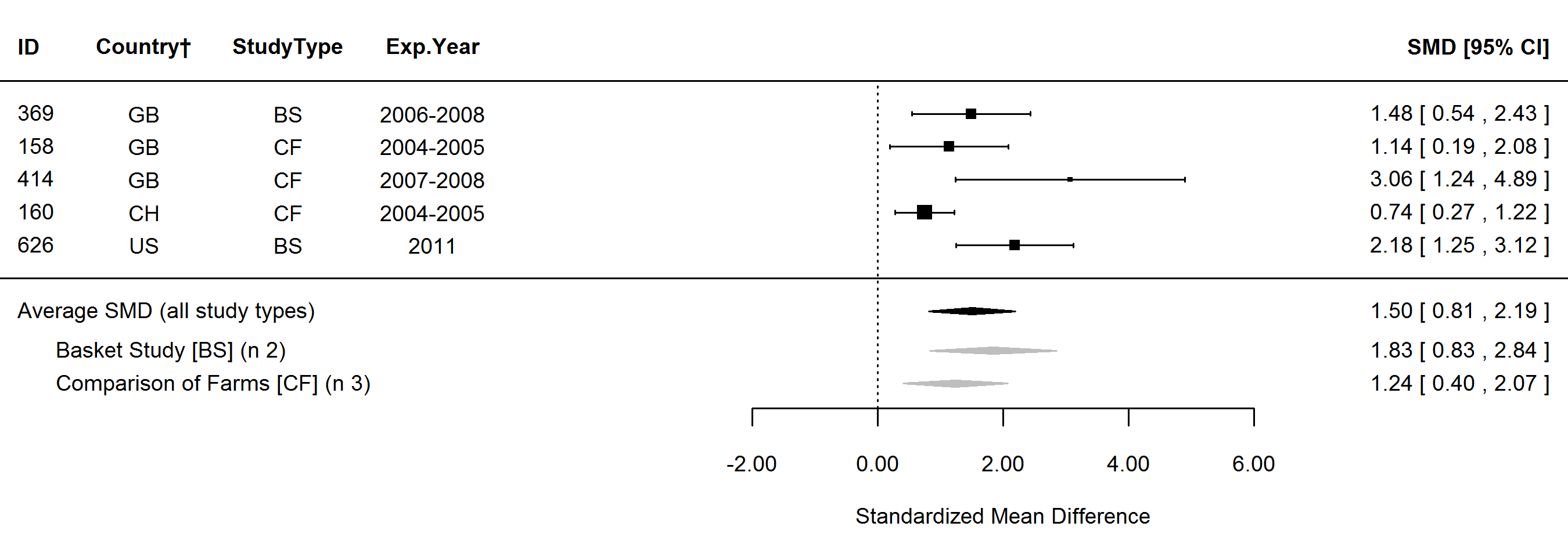
**Figure S21.** Forest plot showing the results of studies examining the linoleic fatty acid (*cis*-9,12-18:2, LA) in organic and conventional bovine milk. The figure shows the standardised mean differences (SMDs) with 95% confidence intervals, for studies included in standard meta-analysis. The estimated average SMD for all studies and SMDs for different study types are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic milk. ID, Paper unique identification number (see supplementary Table S1 for references); CF, comparison of farms, BS, basket study, EX, controlled experiment. \*No information about the experimental year (estimated as publication year -2), †Country codes according ISO 3166-2 (see [*http://www.iso.org/iso/home/standards/country\_codes.htm*](http://www.iso.org/iso/home/standards/country_codes.htm)).



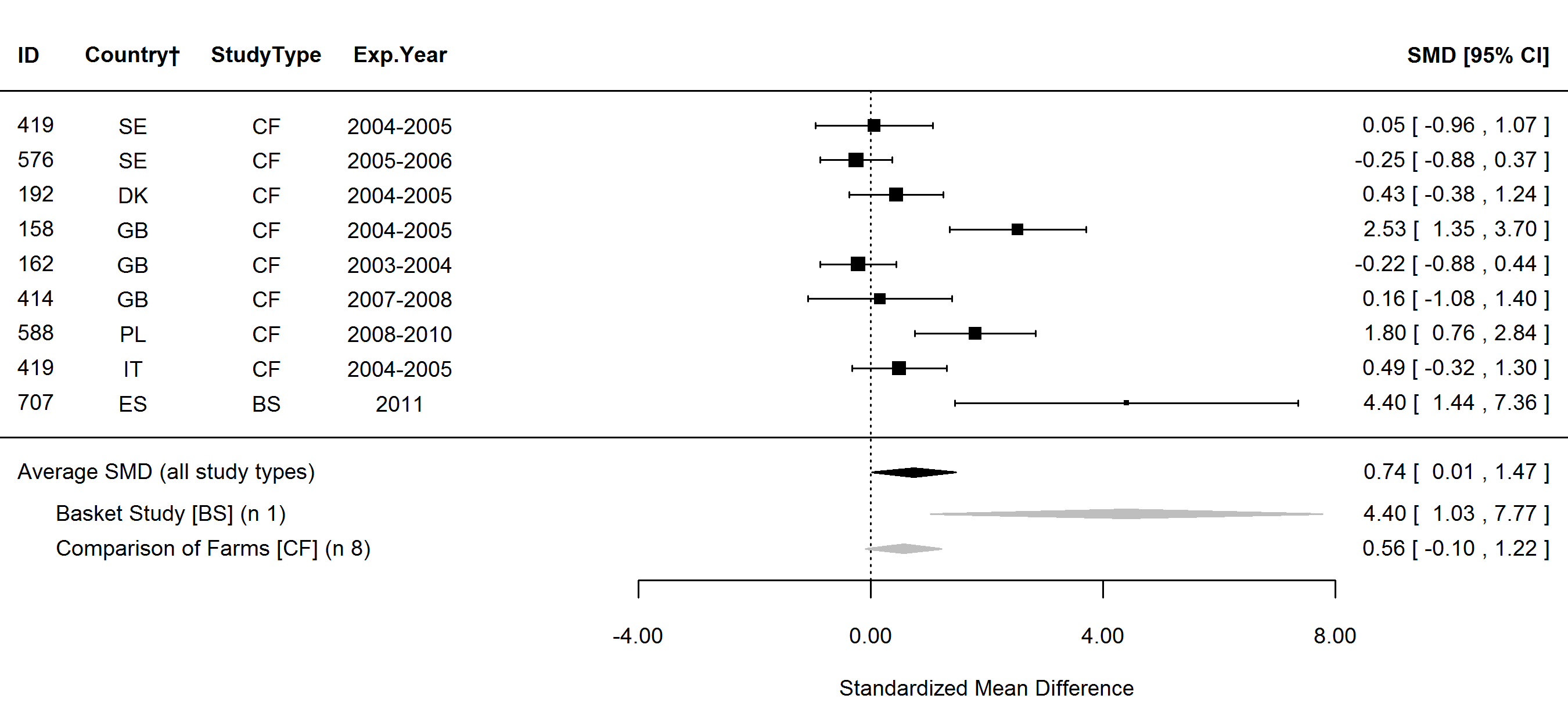
**Figure S22.** Forest plot showing the results of studies examining the arachidonic fatty acid (*cis*-5,8,11,14-20:4, AA) in organic and conventional bovine milk. The figure shows the standardised mean differences (SMDs) with 95% confidence intervals, for studies included in standard meta-analysis. The estimated average SMD for all studies and SMDs for different study types are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic milk. ID, Paper unique identification number (see supplementary Table S1 for references); CF, comparison of farms, BS, basket study, EX, controlled experiment. \*No information about the experimental year (estimated as publication year -2), †Country codes according ISO 3166-2 (see [*http://www.iso.org/iso/home/standards/country\_codes.htm*](http://www.iso.org/iso/home/standards/country_codes.htm)).



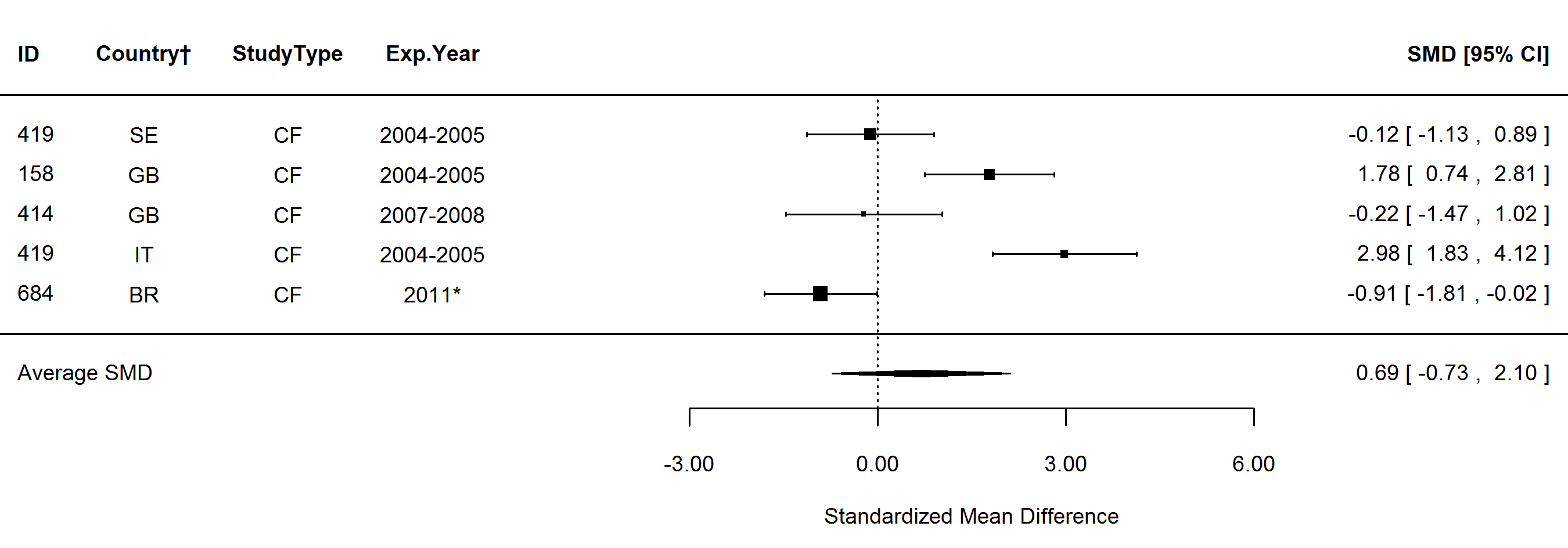
**Figure S23.** Forest plot showing the results of studies examining the omega-6/omega-3 fatty acids ratio (*n*-6/*n*-3) in organic and conventional bovine milk. The figure shows the standardised mean differences (SMDs) with 95% confidence intervals, for studies included in standard meta-analysis. The estimated average SMD for all studies and SMDs for different study types are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic milk. ID, Paper unique identification number (see supplementary Table S1 for references); CF, comparison of farms, BS, basket study, EX, controlled experiment. \*No information about the experimental year (estimated as publication year -2), †Country codes according ISO 3166-2 (see [*http://www.iso.org/iso/home/standards/country\_codes.htm*](http://www.iso.org/iso/home/standards/country_codes.htm)).



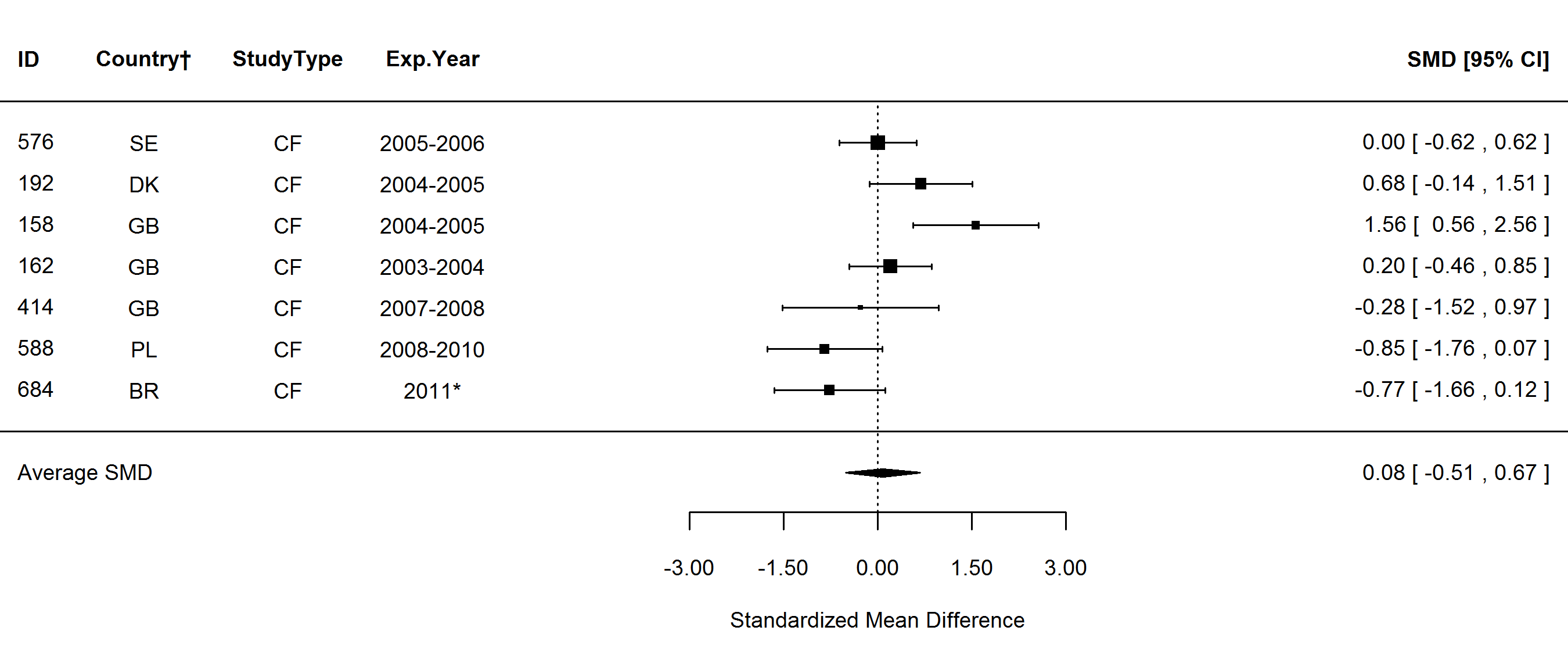
**Figure S24.** Forest plot showing the results of studies examining the omega-3/omega-6 fatty acids ratio (*n*-3/*n*-6) in organic and conventional bovine milk. The figure shows the standardised mean differences (SMDs) with 95% confidence intervals, for studies included in standard meta-analysis. The estimated average SMD for all studies and SMDs for different study types are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic milk. ID, Paper unique identification number (see supplementary Table S1 for references); CF, comparison of farms, BS, basket study, EX, controlled experiment. \*No information about the experimental year (estimated as publication year -2), †Country codes according ISO 3166-2 (see [*http://www.iso.org/iso/home/standards/country\_codes.htm*](http://www.iso.org/iso/home/standards/country_codes.htm)).



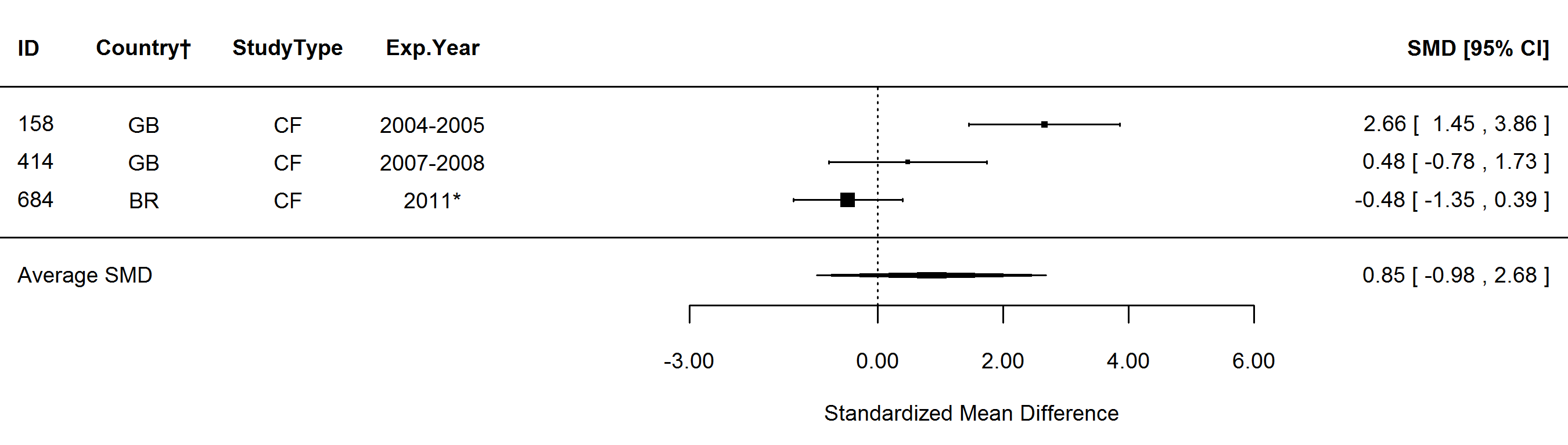
**Figure S25.** Forest plot showing the results of studies examining the α-tocopherol in organic and conventional bovine milk. The figure shows the standardised mean differences (SMDs) with 95% confidence intervals, for studies included in standard meta-analysis. The estimated average SMD for all studies and SMDs for different study types are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic milk. ID, Paper unique identification number (see supplementary Table S1 for references); CF, comparison of farms, BS, basket study, EX, controlled experiment. \*No information about the experimental year (estimated as publication year -2), †Country codes according ISO 3166-2 (see [*http://www.iso.org/iso/home/standards/country\_codes.htm*](http://www.iso.org/iso/home/standards/country_codes.htm)).



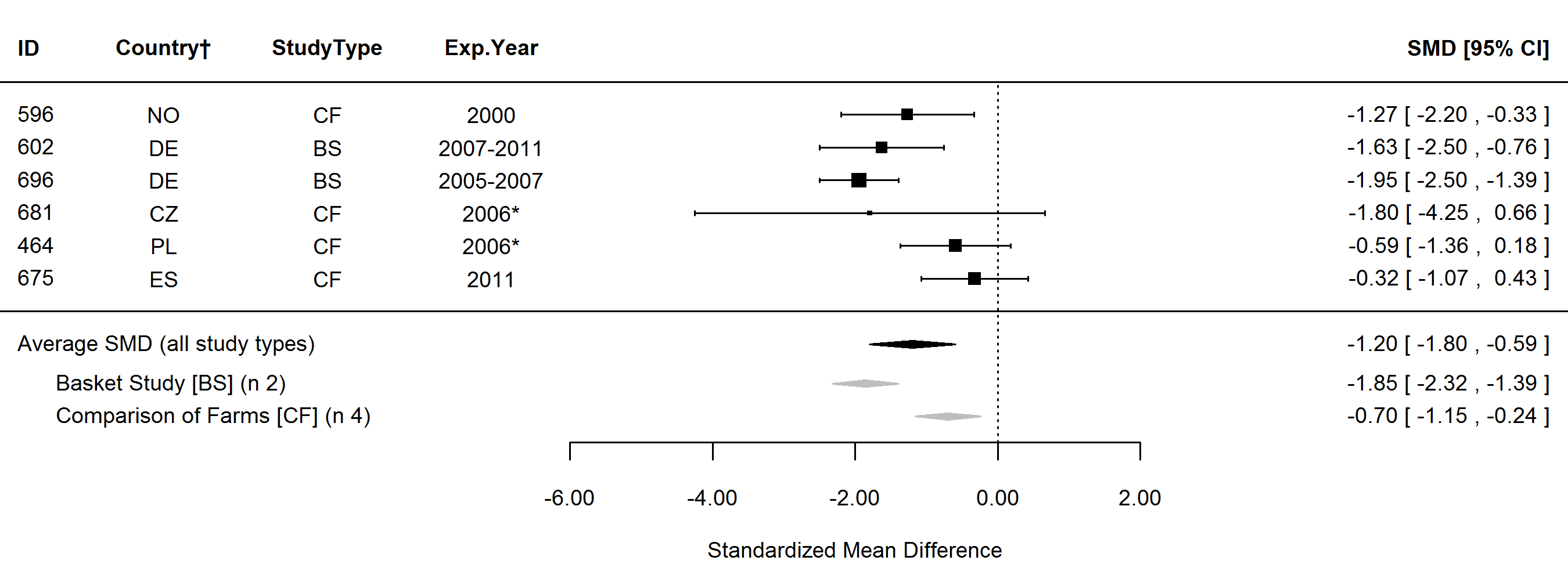
**Figure S26.** Forest plot showing the results of studies examining the total carotenoids in organic and conventional bovine milk. The figure shows the standardised mean differences (SMDs) with 95% confidence intervals, for studies included in standard meta-analysis. The estimated average SMD for all studies and SMDs for different study types are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic milk. ID, Paper unique identification number (see supplementary Table S1 for references); CF, comparison of farms, BS, basket study, EX, controlled experiment. \*No information about the experimental year (estimated as publication year -2), †Country codes according ISO 3166-2 (see [*http://www.iso.org/iso/home/standards/country\_codes.htm*](http://www.iso.org/iso/home/standards/country_codes.htm)).



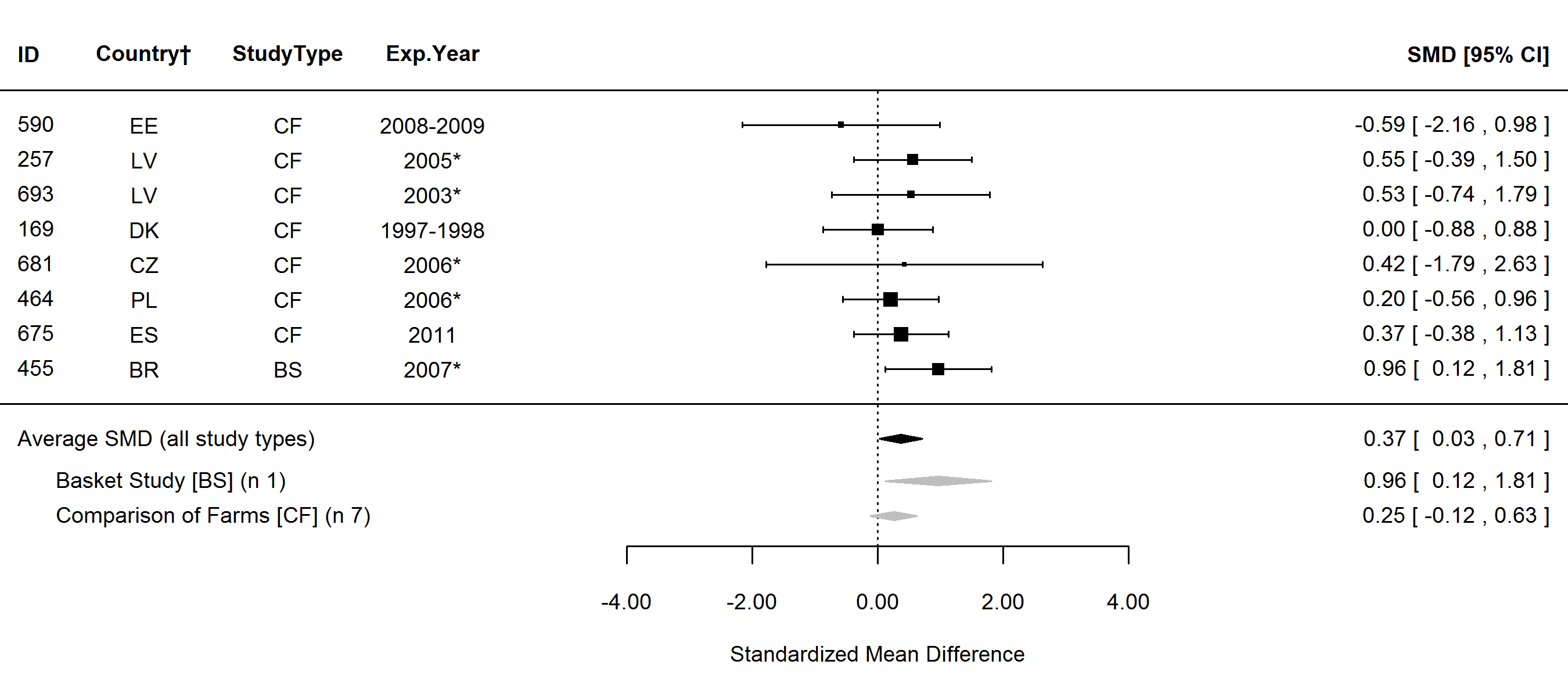
**Figure S27.** Forest plot showing the results of studies examining the β-carotene in organic and conventional bovine milk. The figure shows the standardised mean differences (SMDs) with 95% confidence intervals, for studies included in standard meta-analysis. The estimated average SMD for all studies and SMDs for different study types are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic milk. ID, Paper unique identification number (see supplementary Table S1 for references); CF, comparison of farms, BS, basket study, EX, controlled experiment. \*No information about the experimental year (estimated as publication year -2), †Country codes according ISO 3166-2 (see [*http://www.iso.org/iso/home/standards/country\_codes.htm*](http://www.iso.org/iso/home/standards/country_codes.htm)).



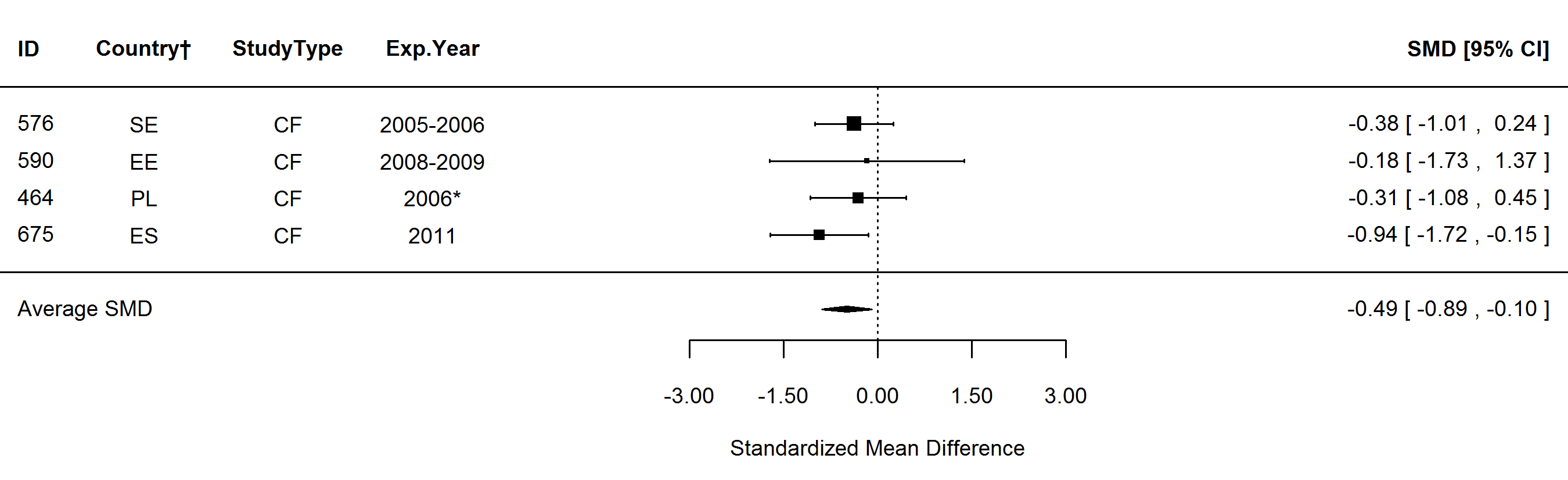
**Figure S28.** Forest plot showing the results of studies examining the lutein in organic and conventional bovine milk. The figure shows the standardised mean differences (SMDs) with 95% confidence intervals, for studies included in standard meta-analysis. The estimated average SMD for all studies and SMDs for different study types are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic milk. ID, Paper unique identification number (see supplementary Table S1 for references); CF, comparison of farms, BS, basket study, EX, controlled experiment. \*No information about the experimental year (estimated as publication year -2), †Country codes according ISO 3166-2 (see [*http://www.iso.org/iso/home/standards/country\_codes.htm*](http://www.iso.org/iso/home/standards/country_codes.htm)).



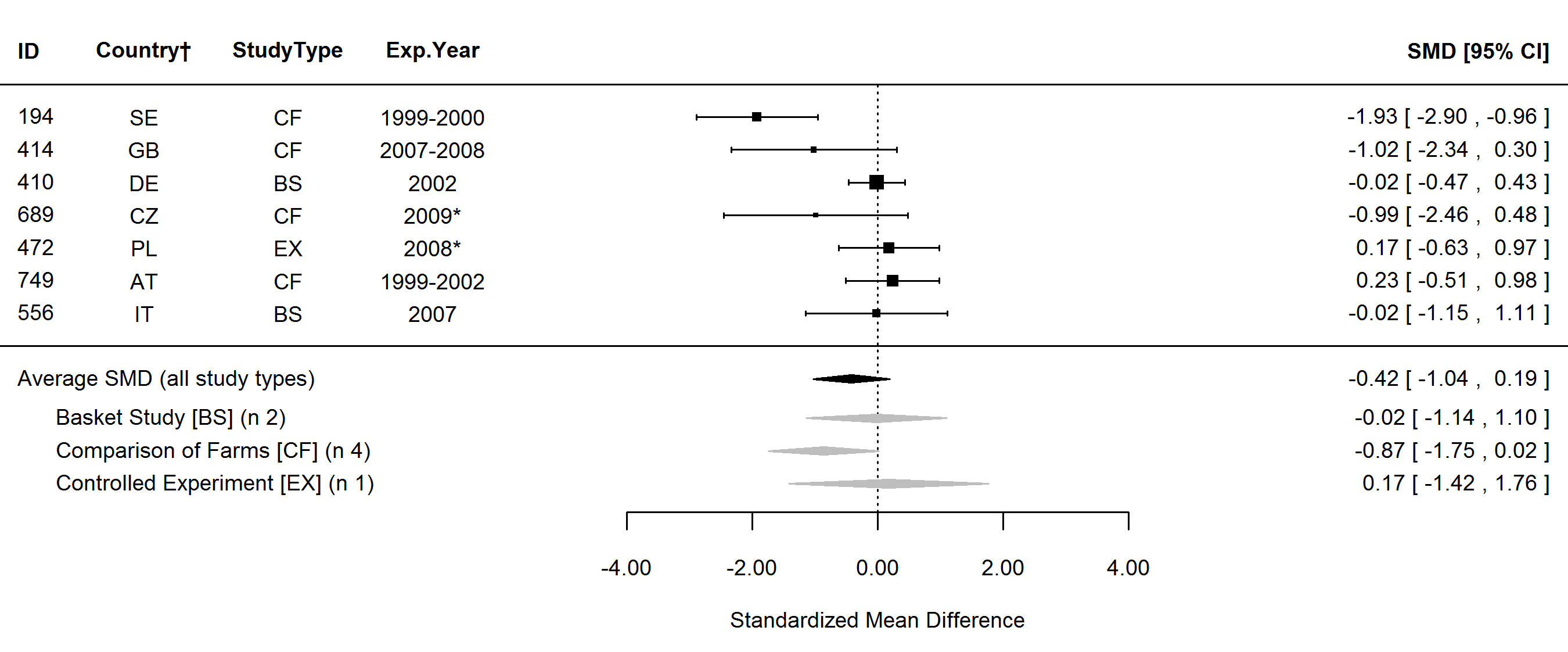
**Figure S29.** Forest plot showing the results of studies examining the iodine (I) in organic and conventional bovine milk. The figure shows the standardised mean differences (SMDs) with 95% confidence intervals, for studies included in standard meta-analysis. The estimated average SMD for all studies and SMDs for different study types are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic milk. ID, Paper unique identification number (see supplementary Table S1 for references); CF, comparison of farms, BS, basket study, EX, controlled experiment. \*No information about the experimental year (estimated as publication year -2), †Country codes according ISO 3166-2 (see [*http://www.iso.org/iso/home/standards/country\_codes.htm*](http://www.iso.org/iso/home/standards/country_codes.htm)).



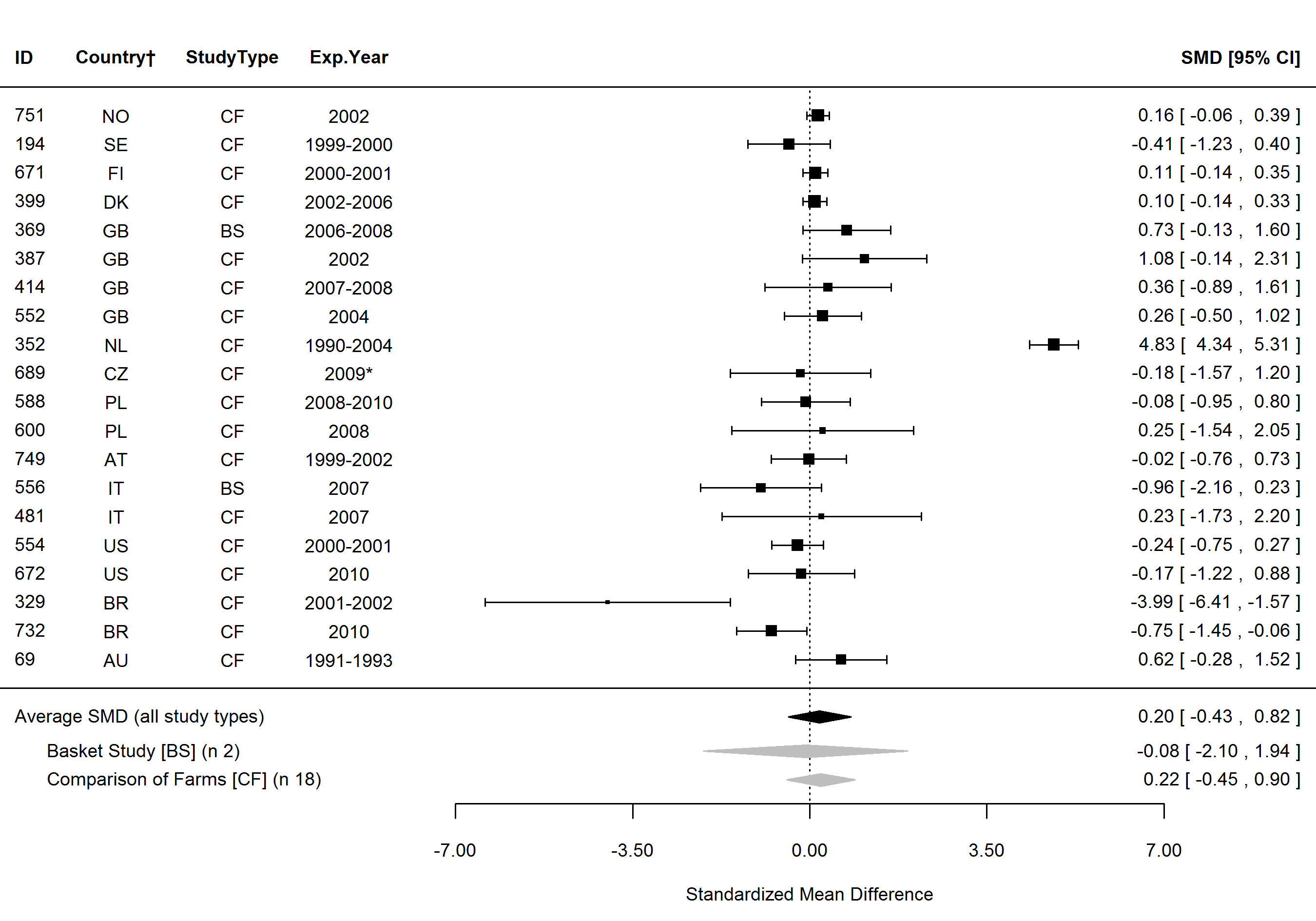
**Figure S30.** Forest plot showing the results of studies examining the iron (Fe) in organic and conventional bovine milk. The figure shows the standardised mean differences (SMDs) with 95% confidence intervals, for studies included in standard meta-analysis. The estimated average SMD for all studies and SMDs for different study types are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic milk. ID, Paper unique identification number (see supplementary Table S1 for references); CF, comparison of farms, BS, basket study, EX, controlled experiment. \*No information about the experimental year (estimated as publication year -2), †Country codes according ISO 3166-2 (see [*http://www.iso.org/iso/home/standards/country\_codes.htm*](http://www.iso.org/iso/home/standards/country_codes.htm)).



**Figure S31.** Forest plot showing the results of studies examining the selenium (Se) in organic and conventional bovine milk. The figure shows the standardised mean differences (SMDs) with 95% confidence intervals, for studies included in standard meta-analysis. The estimated average SMD for all studies and SMDs for different study types are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic milk. ID, Paper unique identification number (see supplementary Table S1 for references); CF, comparison of farms, BS, basket study, EX, controlled experiment. \*No information about the experimental year (estimated as publication year -2), †Country codes according ISO 3166-2 (see [*http://www.iso.org/iso/home/standards/country\_codes.htm*](http://www.iso.org/iso/home/standards/country_codes.htm)).



**Figure S32.** Forest plot showing the results of studies examining the urea in organic and conventional bovine milk. The figure shows the standardised mean differences (SMDs) with 95% confidence intervals, for studies included in standard meta-analysis. The estimated average SMD for all studies and SMDs for different study types are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic milk. ID, Paper unique identification number (see supplementary Table S1 for references); CF, comparison of farms, BS, basket study, EX, controlled experiment. \*No information about the experimental year (estimated as publication year -2), †Country codes according ISO 3166-2 (see [*http://www.iso.org/iso/home/standards/country\_codes.htm*](http://www.iso.org/iso/home/standards/country_codes.htm)).



**Figure S33.** Forest plot showing the results of studies examining the somatic cell count (SCC) in organic and conventional bovine milk. The figure shows the standardised mean differences (SMDs) with 95% confidence intervals, for studies included in standard meta-analysis. The estimated average SMD for all studies and SMDs for different study types are indicated at the bottom of the figure. Sign of the SMD indicates if the analysed parameter is higher (+) or lower (-) in organic milk. ID, Paper unique identification number (see supplementary Table S1 for references); CF, comparison of farms, BS, basket study, EX, controlled experiment. \*No information about the experimental year (estimated as publication year -2), †Country codes according ISO 3166-2 (see [*http://www.iso.org/iso/home/standards/country\_codes.htm*](http://www.iso.org/iso/home/standards/country_codes.htm)).

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| **Table S12.** Results of the standard meta-analysis and sensitivity analysis 1 for parameters where none of the protocols identified significant effects. | | | | | | | | | |
|  | **Standard meta-analysis** | | | | |  | **Sensitivity analysis 1** | | |
| **Parameter** | ***n*** | **SMD** | **95% CI** | ***P\**** | **Heterogeneity**† |  | ***n*** | **Ln ratio**‡ | ***P***\* |
| *Major components* |  |  |  |  |  |  |  |  |  |
| Ash | 4 | 0.10 | -0.62, 0.83 | 0.778 | No (0%) |  | 6 | 4.60 | 0.357 |
| Casein | 7 | -0.56 | -1.95, 0.82 | 0.426 | Yes (88%) |  | 11 | 4.61 | 0.462 |
| Lactose | 17 | 0.00 | -0.42, 0.42 | 0.999 | Yes (80%) |  | 31 | 4.61 | 0.463 |
| Protein (whey) | - | - | - | - | - |  | 3 | 4.64 | 0.496 |
| α-lactalbumin | - | - | - | - | - |  | 3 | 4.57 | 0.252 |
| β-lactoglobulin | 3 | -0.09 | -0.77, 0.59 | 0.790 | No (0%) |  | 3 | 4.66 | 0.497 |
| *Fatty acids* |  |  |  |  |  |  |  |  |  |
| 4:0 (butyric acid) | 10 | 0.17 | -0.22, 0.56 | 0.399 | Yes (58%) |  | 15 | 4.62 | 0.255 |
| 6:0 (caproic acid) | 9 | -0.77 | -2.23, 0.68 | 0.296 | Yes (97%) |  | 14 | 4.60 | 0.434 |
| 10:0 (capric acid) | 10 | 0.74 | -1.74, 3.23 | 0.556 | Yes (99%) |  | 17 | 4.60 | 0.487 |
| 13:0 (tridecylic acid) | - | - | - | - | - |  | 3 | 4.57 | 0.499 |
| 18:0 (stearic acid) | 13 | -0.09 | -0.91, 0.72 | 0.825 | Yes (90%) |  | 20 | 4.58 | 0.254 |
| 12:0+14:0+16:0§ | - | - | - | - | - |  | 14 | 4.59 | 0.291 |
| USFA | 3 | 0.69 | -0.90, 2.28 | 0.396 | Yes (92%) |  | 3 | 4.61 | 0.503 |
| 18:1 | 4 | -11.96 | -38.16, 14.23 | 0.371 | Yes (100%) |  | 4 | 4.60 | 0.442 |
| 18:2 | 4 | -3.59 | -9.92, 2.74 | 0.266 | Yes (99%) |  | 6 | 4.40 | 0.145 |
| 18:3 | - | - | - | - | - |  | 3 | 4.46 | 0.381 |
| 10:1 (4-cis-decenoic acid) | 5 | -0.05 | -0.44, 0.34 | 0.805 | No (0%) |  | 5 | 4.47 | 0.198 |
| *n*, number of data points included in the comparison; SMD, standardised mean difference; USFA, unsaturated fatty acids. \**P* value <0.05 indicates significance of the difference in composition between organic and conventional milk; †Heterogeneity and the I2 Statistic; ‡Ln ratio = Ln(ORG/CONV × 100%); §Calculated based on published fatty acids composition data. | | | | | | | | | |

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| **Table S12 cont.** Results of the standard meta-analysis and sensitivity analysis 1 for parameters where none of the protocols identified significant effects. | | | | | | | | | |
|  | **Standard meta-analysis** | | | | |  | **Sensitivity analysis 1** | | |
| **Parameter** | ***n*** | **SMD** | **95% CI** | ***P\**** | **Heterogeneity**† |  | ***n*** | **Ln ratio**‡ | ***P***\* |
| 12:1 (lauroleic acid) | 3 | -0.36 | -1.17, 0.46 | 0.390 | No (0%) |  | 3 | 4.44 | 0.250 |
| 14:1 (myristoleic acid) | 7 | 0.15 | -0.44, 0.74 | 0.619 | Yes (65%) |  | 13 | 4.62 | 0.281 |
| 16:1 (palmitoleic acid) | 9 | -0.38 | -1.08, 0.32 | 0.292 | Yes (85%) |  | 17 | 4.58 | 0.172 |
| 17:1 (heptadecenoic acid) | 3 | 0.53 | -0.55, 1.60 | 0.336 | Yes (33%) |  | 4 | 4.80 | 0.439 |
| cis-11-18:1 (cis-vaccenic acid) | - | - | - | - | - |  | 5 | 4.54 | 0.281 |
| cis-12-18:1 | - | - | - | - | - |  | 3 | 4.77 | 0.494 |
| cis-13-18:1 | - | - | - | - | - |  | 3 | 4.79 | 0.491 |
| trans-9-18:1 (elaidic acid) | 3 | 0.24 | -1.52, 2.00 | 0.787 | Yes (97%) |  | 4 | 4.70 | 0.375 |
| trans-12-18:1 | 3 | -0.14 | -1.67, 1.40 | 0.862 | Yes (96%) |  | 3 | 4.79 | 0.507 |
| trans-6-8-18:1 | 3 | 0.00 | -1.34, 1.35 | 0.999 | Yes (94%) |  | 3 | 4.71 | 0.498 |
| CLA (trans-7,9-18:2) | - | - | - | - | - |  | 3 | 5.07 | 0.499 |
| CLA (trans-9,11-18:2) | - | - | - | - | - |  | 3 | 5.34 | 0.123 |
| CLA (trans-11,13-18:2) | - | - | - | - | - |  | 3 | 5.61 | 0.125 |
| CLA (trans-12,14-18:2) | - | - | - | - | - |  | 3 | 5.55 | 0.121 |
| cis-11,14-20:2 | - | - | - | - | - |  | 3 | 4.74 | 0.506 |
| ETE (cis-11,14,17-20:3) | - | - | - | - | - |  | 4 | 4.70 | 0.495 |
| Long chain FA | 5 | 0.07 | -1.18, 1.32 | 0.917 | Yes (88%) |  | 6 | 4.63 | 0.188 |
| Medium chain FA | 5 | 0.10 | -0.25, 0.45 | 0.567 | No (0%) |  | 7 | 4.57 | 0.205 |
| Short chain FA | 5 | 0.31 | -1.43, 2.04 | 0.728 | Yes (93%) |  | 6 | 4.61 | 0.463 |
| *n*, number of data points included in the comparison; SMD, standardised mean difference; CLA, conjugated linoleic acids; ETE, eicosatrienoic acid; FA, fatty acids. \**P* value <0.05 indicates significance of the difference in composition between organic and conventional milk; †Heterogeneity and the I2 Statistic; ‡Ln ratio = Ln(ORG/CONV × 100%). | | | | | | | | | |

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| **Table S12 cont.** Results of the standard meta-analysis and sensitivity analysis 1 for parameters where none of the protocols identified significant effects. | | | | | | | | | |
|  | **Standard meta-analysis** | | | | |  | **Sensitivity analysis 1** | | |
| **Parameter** | ***n*** | **SMD** | **95% CI** | ***P\**** | **Heterogeneity**† |  | ***n*** | **Ln ratio**‡ | ***P***\* |
| *Vitamins and antioxidants* |  |  |  |  |  |  |  |  |  |
| Vitamin C | - | - | - | - | - |  | 3 | 4.84 | 0.131 |
| Vitamin D | 3 | 0.14 | -1.00, 1.28 | 0.805 | Yes (56%) |  | 3 | 4.52 | 0.369 |
| Vitamin E activity | - | - | - | - | - |  | 4 | 4.82 | 0.061 |
| *Minerals and undesirable metals* |  |  |  |  |  |  |  |  |  |
| Cadmium (Cd) | 4 | -0.29 | -0.73, 0.16 | 0.204 | No (2%) |  | 8 | 4.62 | 0.476 |
| Calcium (Ca) | 7 | -0.12 | -0.47, 0.23 | 0.512 | No (0%) |  | 12 | 4.62 | 0.217 |
| Cobalt (Co) | 3 | 0.01 | -0.50, 0.51 | 0.983 | No (0%) |  | 3 | 4.45 | 0.254 |
| Lead (Pb) | 4 | -0.21 | -0.65, 0.23 | 0.348 | No (0%) |  | 7 | 4.58 | 0.327 |
| Magnesium (Mg) | 6 | -64.62 | -194.47, 65.24 | 0.329 | Yes (100%) |  | 9 | 4.58 | 0.131 |
| Manganese (Mn) | 4 | -0.44 | -1.10, 0.22 | 0.188 | Yes (45%) |  | 4 | 4.50 | 0.244 |
| Molybdenum (Mo) | 3 | 0.51 | -0.18, 1.21 | 0.147 | Yes (54%) |  | 3 | 4.74 | 0.123 |
| Phosphorus (P) | 5 | 0.00 | -0.30, 0.30 | 0.997 | No (0%) |  | 9 | 4.60 | 0.315 |
| Sodium (Na) | 3 | -0.15 | -0.69, 0.38 | 0.571 | No (0%) |  | 5 | 4.59 | 0.159 |
| Zinc (Zn) | 9 | -0.21 | -0.49, 0.08 | 0.155 | No (9%) |  | 12 | 4.56 | 0.059 |
| *n*, number of data points included in the comparison; SMD, standardised mean difference. \**P* value <0.05 indicates significance of the difference in composition between organic and conventional milk; †Heterogeneity and the I2 Statistic; ‡Ln ratio = Ln(ORG/CONV × 100%). | | | | | | | | | |

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| **Table S12 cont.** Results of the standard meta-analysis and sensitivity analysis 1 for parameters where none of the protocols identified significant effects. | | | | | | | | | |
|  | **Standard meta-analysis** | | | | |  | **Sensitivity analysis 1** | | |
| **Parameter** | ***n*** | **SMD** | **95% CI** | ***P\**** | **Heterogeneity**† |  | ***n*** | **Ln ratio**‡ | ***P***\* |
| *Pesticides, mycotoxins and other contaminants* |  |  |  |  |  |  |  |  |  |
| Aflatoxin M1 | - | - | - | - | - |  | 5 | 4.79 | 0.191 |
| Dieldrin | - | - | - | - | - |  | 3 | 3.98 | 0.246 |
| Hexachlorobenzene (HCB) | - | - | - | - | - |  | 5 | 4.75 | 0.255 |
| α-esachlorciclohexane (α-HCH) | - | - | - | - | - |  | 3 | 4.48 | 0.379 |
| γ-esachlorciclohexane (γ-HCH) | - | - | - | - | - |  | 4 | 4.05 | 0.252 |
| *Other* |  |  |  |  |  |  |  |  |  |
| Atherogenicity Index | - | - | - | - | - |  | 3 | 4.41 | 0.126 |
| Bacteria count | 8 | -0.05 | -0.29, 0.19 | 0.682 | Yes (35%) |  | 12 | 4.59 | 0.458 |
| Dry mass | - | - | - | - | - |  | 5 | 4.58 | 0.184 |
| Lactoferrin | 3 | 4.20 | -3.13, 11.53 | 0.261 | Yes (98%) |  | 3 | 4.80 | 0.256 |
| Lysozyme | 3 | 1.08 | -3.04, 5.19 | 0.608 | Yes (96%) |  | 3 | 4.71 | 0.506 |
| pH | 5 | 0.34 | -0.36, 1.04 | 0.346 | No (18%) |  | 7 | 4.61 | 0.500 |
| Thrombogenicity index | - | - | - | - | - |  | 3 | 4.43 | 0.125 |
| Titratable acidity | 3 | 0.79 | -0.14, 1.73 | 0.096 | No (0%) |  | 4 | 4.71 | 0.065 |
| *n*, number of data points included in the comparison; SMD, standardised mean difference. \**P* value <0.05 indicates significance of the difference in composition between organic and conventional milk; †Heterogeneity and the I2 Statistic; ‡Ln ratio = Ln(ORG/CONV × 100%). | | | | | | | | | |

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| **Table S13.** Results of the statistical test for publication bias reported in Table 1 of the main paper. | | | | | |
|  | **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**§ |
| **Parameter** | **No of missing *n*** | **funnel plot side** |
| Milk yield | 0 | right | 5697 | 32 | 0.253 |
| SFA | 2 | left | 0 | 19 | 0.003 |
| 12:0 (lauric acid) | 0 | left | 0 | 11 | 0.039 |
| 14:0 (myristic acid)|| | 0 | left | 96 | 12 | <0.001 |
| 16:0 (palmitic acid) | 1 | left | 0 | 14 | <0.001 |
| MUFA | 2 | right | 0 | 19 | 0.003 |
| OA (cis-9-18:1) | 0 | left | 0 | 10 | 0.012 |
| VA (trans-11-18:1) | - | - | 514 | 12 | <0.001 |
| PUFA | 0 | left | 211 | 19 | 0.118 |
| CLA (total) | 0 | left | 146 | 11 | 0.003 |
| CLA9 (cis-9-trans-11-18:2) | 0 | left | 416 | 14 | 0.002 |
| CLA10 (trans-10-cis-12-18:2) | 0 | left | 8 | 3 | 0.028 |
| n-3 FA | 0 | left | 492 | 12 | <0.001 |
| ALA (cis-9,12,15-18:3) | 0 | left | 3146 | 21 | <0.001 |
| EPA (cis-5,8,11,14,17-20:5) | 3 | left | 291 | 8 | 0.403 |
| DPA (cis-7,10,13,16,19-22:5) | 0 | left | 89 | 5 | 0.005 |
| DHA (cis-4,7,10,13,16,19-22:6) | 0 | left | 0 | 3 | 0.228 |
| VLC n-3 PUFA¶ | - | - | - | - | - |
| n-6 FA | 0 | left | 0 | 12 | 0.043 |
| LA (cis-9,12-18:2) | 3 | right | 233 | 12 | 0.956 |
| AA (cis-5,8,11,14-20:4) | 2 | right | 36 | 5 | 0.002 |
| LA/ALA ratio¶ | - | - | - | - | - |
| n-6/n-3 ratio | 0 | right | 138 | 7 | 0.002 |
| n-3/n-6 ratio | 0 | left | 94 | 5 | 0.002 |
| SFA, saturated fatty acids; MUFA, monounsaturated fatty acids; OA, oleic acid; VA, vaccenic acid; PUFA, polyunsaturated fatty acids; CLA, conjugated linoleic acid; FA, fatty acids; ALA, α-linolenic acid; EPA, eicosapentaenoic acid; DPA, docosapentaenoic acid; DHA, docosahexaenoic acid; VLC n-3 PUFA, very long chain n-3 PUFA (EPA+DPA+DHA); LA, linoleic acid; AA, arachidonic acid. \*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 retrieved and incorporate in the meta-analysis before the results become nonsignificant; ‡Number of missing data point that need to be retrieved 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 (where the MPD between ORG and CONV was over fifty times greater than the mean value including the outliers) were removed; ¶Calculated based on published fatty acids composition data. | | | | | |

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| **Table S13 cont.** Results of the statistical test for publication bias reported in Table 1 of the main paper. | | | | | |
|  | **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**§ |
| **Parameter** | **No of missing *n*** | **funnel plot side** |
| α-tocopherol | 0 | left | 42 | 9 | 0.001 |
| Carotenoids | 0 | left | 8 | 5 | 0.485 |
| β-carotene | 0 | right | 0 | 7 | 0.970 |
| Lutein | 0 | left | 3 | 3 | 0.390 |
| Zeaxanthin | - | - | - | - | - |
| Iodine (I) | 0 | right | 101 | 6 | 0.815 |
| Iron (Fe) | 0 | right | 3 | 8 | 0.641 |
| Selenium (Se) | 1 | left | 4 | 4 | 0.857 |
| Urea | 0 | right | 6 | 7 | 0.192 |
| SCC|| | 9 | right | 122 | 20 | 0.084 |
| SCC, somatic cell count. \*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 retrieved and incorporate in the meta-analysis before the results become nonsignificant; ‡Number of missing data point that need to be retrieved 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 (where the MPD between ORG and CONV was over fifty times greater than the mean value including the outliers) were removed; ¶Calculated based on published fatty acids composition data. | | | | | |



**Figure S34**. Bi-plot derived from the redundancy analysis showing the relationship between milk composition parameters (fatty acids (●) and antioxidants (■)) and cows feeding and rearing parameters (categorical explanatory variables (○,□)) and quantitative explanatory variables (🡲). 6:3, *n*-3/*n*-6 fatty acids ratio; 2R, synthetic isomers of α-tocopherol; 3R, natural isomers of α-tocopherol; BC, β-carotene; BI, breed index; CLA9, rumenic acid (*cis*-9,*trans*-11-18:2); CO, concentrate feeds; GA, grazing intake; GS, grass silage; HIC, high-input conventional production system; H/S, hay or straw; LA, linoleic acid (*cis*-9,12-18:2); LIC, low-input conventional production system; LU, lutein; LR, lauristic acid (12:0); MA, myristic acid (14:0); MS, maize silage; *n*-3, omega-3 fatty acids; *n*-6, omega-6 fatty acids; OA, oleic acid (*cis*-9-18:1); ORG, organic production system; OS, other silage; PA, palmitic acid (16:0); SA, stearic acid (18:0); VA, vaccenic acid (trans-11-18:1); ZE, zeaxanthin.



**Figure S35**. Results of standard meta-analysis and sensitivity analysis 1 for milk yield, fat composition and somatic cells in goat, sheep and buffalo milk. MPD, mean percent difference; CONV, conventional samples; ORG, organic samples; *n*, number of datapoints included in meta-analysis; MUFA, monounsaturated fatty acids; OA, oleic acid; VA, trans-vaccenic acid; PUFA, polyunsaturated fatty acids; CLA, conjugated linoleic acid; ALA, α-linolenic acid; LA, linoleic acid; SCC, somatic cell count; SMD, standardised mean difference. \**P* value <0.05 indicates a significant difference between ORG and CONV; †Heterogeneity and the I2 Statistic; ‡Ln ratio = Ln(ORG/CONV × 100%); ○, MPD calculated using data included in sensitivity analysis 1;   
▷, MPD calculated using data included in standard meta-analysis; ◆, SMD from the standard meta-analysis with 95% confidence intervals represented by horizontal bars.

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| **Table S14.** Mean percentage differences (MPD) for individual studies (study ID in parentheses, see Table S1 for references) calculated using the data for goat, sheep and buffalo milk and cheese of composition parameters shown in Fig. 2 and 3 of the main paper. | | | | |
| **Parameter** | **goat milk** | **sheep milk** | **buffalo milk** | **buffalo cheese** |
| SFA | -2NS | -9\* |  |  |
|  | (386) | (456) |  |  |
| 12:0 (lauric acid) | -3NS | -20NS |  |  |
|  | (386) | (456) |  |  |
| 14:0 (myristic acid) |  |  |  | -6NS |
|  |  |  |  | (155) |
| 16:0 (palmitic acid) |  |  |  | 1NS |
|  |  |  |  | (155) |
| OA (cis-9-18:1) |  |  |  | -7\* |
|  |  |  |  | (155) |
| VA (trans-11-18:1) |  |  |  | 105\* |
|  |  |  |  | (155) |
| CLA (total) |  |  |  | 45\*\* |
|  |  |  |  | (155) |
| n-3 FA | 200\* | 71\* |  |  |
|  | (385) | (385) |  |  |
| ALA (cis-9,12,15-18:3) |  |  |  | 40.63\* |
|  |  |  |  | (155) |
| n-6 FA | -22NS | 3NS |  |  |
|  | (385) | (385) |  |  |
| LA (cis-9,12-18:2) |  |  |  | -48\* |
|  |  |  |  | (155) |
| n-6/n-3 ratio | -5.36NS | -53NS |  |  |
|  | (385) | (385) |  |  |
| n-3/n-6 ratio | 267NS | 67\* |  |  |
|  | (385) | (385) |  |  |
| Atherogenicity Index | -18\* | -18\* |  |  |
|  | (385) | (385) |  |  |
| α-tocopherol |  |  | 52\* | 44\* |
|  |  |  | (155) | (155) |
| Iron (Fe) |  | -33NS |  |  |
|  |  | (456) |  |  |
| Urea |  | 5NS | 10NR |  |
|  |  | (616) | (474) |  |
| SFA, saturated fatty acids; OA, oleic acid; VA, vaccenic acid; CLA, conjugated linoleic acid; FA, fatty acids; ALA, α-linolenic acid; . \*Indicates significant difference between organic (ORG) and conventional (CONV) samples reported by the author when *P*≤0.05; \*\*Indicates significant difference between ORG and CONV samples reported by the author when *P*≤0.01; NSIndicates that no significant difference between ORG and CONV samples were detected by the author; NRIndicates that the author did not reported significance of difference between ORG and CONV samples. | | | | |

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| **Table S15.** Mean percentage differences (MPD) for individual studies (study ID in parentheses, see Table S1 for references) calculated using the data for bovine dairy products of composition parameters shown in Fig. 2 and 3 of the main paper. | | | | | | | |
| **Parameter** | **fermented milk** | **yoghurt** | **cheese** | **curd** | **butter** | **milk+cheese +butter** | **desalted milk, whey** |
| SFA | 1NR | -5\* | -2\* | 1NS |  |  |  |
|  | (455) | (455) | (190) | (190) |  |  |  |
|  | -1NR | -2NR | -7NR |  |  |  |  |
|  | (591) | (591) | (406) |  |  |  |  |
|  | -6NR |  | 7NS |  |  |  |  |
|  | (595) |  | (556) |  |  |  |  |
|  | -1NR |  |  |  |  |  |  |
|  | (705) |  |  |  |  |  |  |
| 12:0 (lauric acid) |  |  | 18NS |  |  |  |  |
|  |  |  | (556) |  |  |  |  |
| 14:0 (myristic acid) |  |  | 13NS |  | -1NS |  |  |
|  |  |  | (556) |  | (666) |  |  |
| 16:0 (palmitic acid) | -14NR |  | 6NS |  | -1NS |  |  |
|  | (595) |  | (556) |  | (666) |  |  |
| MUFA | 1NR | -8\* | 13NR | -1NS |  |  |  |
|  | (455) | (455) | (406) | (190) |  |  |  |
|  | 1NR | 2NR | -11NS |  |  |  |  |
|  | (591) | (591) | (556) |  |  |  |  |
|  | 15NR |  |  |  |  |  |  |
|  | (595) |  |  |  |  |  |  |
|  | 2NR |  |  |  |  |  |  |
|  | (705) |  |  |  |  |  |  |
| OA (cis-9-18:1) |  |  | -12NS |  |  |  |  |
|  |  |  | (556) |  |  |  |  |
| VA (trans-11-18:1) | 50NR | 54NR | 41NR | 44NS | 42NR |  |  |
|  | (591) | (591) | (155) | (190) | (155) |  |  |
|  | 73NR |  | 60\* |  | 27\*\* |  |  |
|  | (595) |  | (190) |  | (666) |  |  |
|  | 73NR |  | 46NR |  |  |  |  |
|  | (705) |  | (406) |  |  |  |  |
| SFA, saturated fatty acids; MUFA, monounsaturated fatty acids; OA, oleic acid; VA, vaccenic acid; PUFA, polyunsaturated fatty acids. \*Indicates significant difference between organic (ORG) and conventional (CONV) samples reported by the author when *P*≤0.05; \*\*Indicates significant difference between ORG and CONV samples reported by the author when *P*≤0.01; NSIndicates that no significant difference between ORG and CONV samples were detected by the author; NRIndicates that the author did not reported significance of difference between ORG and CONV samples. | | | | | | | |

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| **Table S15 cont.** Mean percentage differences (MPD) for individual studies (study ID in parentheses, see Table S1 for references) calculated using the data for bovine dairy products of composition parameters shown in Fig. 2 and 3 of the main paper. | | | | | | | |
| **Parameter** | **fermented milk** | **yoghurt** | **cheese** | **curd** | **butter** | **milk+cheese +butter** | **desalted milk, whey** |
| PUFA | 4NR | -9NS | 4NS | -2NS |  |  |  |
|  | (455) | (455) | (190) | (190) |  |  |  |
|  | 33NR | 40NR | 27NR |  |  |  |  |
|  | (591) | (591) | (406) |  |  |  |  |
|  | -3NR |  | -9NS |  |  |  |  |
|  | (595) |  | (556) |  |  |  |  |
|  | 1NR |  |  |  |  |  |  |
|  | (705) |  |  |  |  |  |  |
| CLA (total) | 129NR |  | 61NR |  | 72NR |  |  |
|  | (595) |  | (155) |  | (155) |  |  |
|  | 4NR |  | 53NR |  |  |  |  |
|  | (705) |  | (406) |  |  |  |  |
|  |  |  | 38NR |  |  |  |  |
|  |  |  | (674) |  |  |  |  |
| CLA9 |  |  | 56\* | 33NS | 96\*\* |  |  |
| (cis-9-trans-11-18:2) |  |  | (190) | (190) | (666) |  |  |
|  |  |  | -18NS |  |  |  |  |
|  |  |  | (556) |  |  |  |  |
| n-3 FA |  |  | 28NR |  |  |  |  |
|  |  |  | (406) |  |  |  |  |
| ALA | 101NR | 114NR | 51NR | 51NS | 91NR |  |  |
| (cis-9,12,15-18:3) | (591) | (591) | (155) | (190) | (155) |  |  |
|  | 21NR |  | 68\* |  | 68\* |  |  |
|  | (595) |  | (190) |  | (666) |  |  |
|  | 111NR |  | 18NS |  |  |  |  |
|  | (705) |  | (556) |  |  |  |  |
| n-6 FA |  |  | 18NR |  |  |  |  |
|  |  |  | (406) |  |  |  |  |
| LA (cis-9,12-18:2) |  |  | -40NR | -25NS | -37NR |  |  |
|  |  |  | (155) | (190) | (155) |  |  |
|  |  |  | -19\* |  | -37\* |  |  |
|  |  |  | (190) |  | (666) |  |  |
|  |  |  | -3NS |  |  |  |  |
|  |  |  | (556) |  |  |  |  |
| CLA, conjugated linoleic acid; FA, fatty acids; ALA, α-linolenic acid; LA, linoleic acid. \*Indicates significant difference between organic (ORG) and conventional (CONV) samples reported by the author when *P*≤0.05; \*\*Indicates significant difference between ORG and CONV samples reported by the author when *P*≤0.01; NSIndicates that no significant difference between ORG and CONV samples were detected by the author; NRIndicates that the author did not reported significance of difference between ORG and CONV samples. | | | | | | | |

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| **Table S15 cont.** Mean percentage differences (MPD) for individual studies (study ID in parentheses, see Table S1 for references) calculated using the data for bovine dairy products of composition parameters shown in Fig. 2 and 3 of the main paper. | | | | | | | |
| **Parameter** | **fermented milk** | **yoghurt** | **cheese** | **curd** | **butter** | **milk+cheese +butter** | **desalted milk, whey** |
| n-6/n-3 ratio |  |  | -27NR |  |  |  |  |
|  |  |  | (406) |  |  |  |  |
|  |  |  | -20NS |  |  |  |  |
|  |  |  | (556) |  |  |  |  |
| n-3/n-6 ratio |  |  | 27NR |  |  |  |  |
|  |  |  | (406) |  |  |  |  |
|  |  |  | 20NR |  |  |  |  |
|  |  |  | (556) |  |  |  |  |
| α-tocopherol |  |  | 33NR |  |  | 49\* |  |
|  |  |  | (406) |  |  | (155) |  |
| β-carotene |  |  |  |  |  | 101\* |  |
|  |  |  |  |  |  | (155) |  |
| Iron (Fe) |  |  | 12NR |  |  |  |  |
|  |  |  | (406) |  |  |  |  |
| Selenium (Se) |  |  |  |  |  |  | -59\* |
|  |  |  |  |  |  |  | (669) |
|  |  |  |  |  |  |  | -36\*\*\* |
|  |  |  |  |  |  |  | (669) |
| CLA, conjugated linoleic acid; FA, fatty acids; ALA, α-linolenic acid; LA, linoleic acid. \*Indicates significant difference between organic (ORG) and conventional (CONV) samples reported by the author when *P*≤0.05; \*\*Indicates significant difference between ORG and CONV samples reported by the author when *P*≤0.01; NSIndicates that no significant difference between ORG and CONV samples were detected by the author; NRIndicates that the author did not reported significance of difference between ORG and CONV samples. | | | | | | | |

# 3. ADDITIONAL DISCUSSION

Three previous systematic literature reviews([1-3](#_ENREF_1)) used meta-analyses methods to synthesise published information on composition differences between organic and conventional milk and/or dairy products, but report contrasting results and conclusions. The main results these studies are described and discussed below.

Dangour *et al*.([1](#_ENREF_1)) combined data for milk, meat and eggs extracted from 25 publications (11 deemed to be of satisfactory quality) and carried out unweighted meta-analyses (T-test with “robust standard deviation”). For livestock products their published paper only reports results for total fat and ash contents which were not significantly different. However, in their report to the sponsor of their study (UK Food Standard Agency)([4](#_ENREF_4)) meta-analyses results for total SFA, MUFA, PUFA, *n*-3 PUFA and *n*-6 PUFA were also reported. For most of these parameters no significant difference between organic and conventional livestock products was found in meta-analysis using all available data or only data from studies the authors deemed to be satisfactory. However, significantly higher concentration (*P*=0.001; *n*=12; MPD=10) and a trend towards higher concentrations (*P*=0.07; *n*=5; MPD=11) of total PUFA in organic livestock products were detected when all available data or only data from studies the authors deemed satisfactory, were used in meta-analyses respectively. Also, a trend towards higher *n*-3 PUFA concentrations (*P*=0.10; *n*=13; MPD=67) was detected when only data from studies the authors deemed satisfactory were used in meta-analyses. The Dangour *et al*.([1](#_ENREF_1)) study concluded: *“On the basis of a systematic review of studies of satisfactory quality, there is no evidence for difference in nutrient quality between organic and conventionally produced foodstuffs”*.

Palupi *et al*.([2](#_ENREF_2)) extracted data from 14 studies published between March 2008 and April 2011 reporting data for bovine milk (13 studies) and bovine dairy products (1 study) and carried out weighted meta-analyses. Results showed significantly higher (*P*<0.001) concentrations of fat, protein, SFA, PUFA, *n*-3 PUFA, ALA, EPA, DPA, CLA, vaccenic acid (VA), α-tocopherol and β-carotene, but lower concentrations of MUFA, stearic acid (18:0), oleic acid (18:1), *n*-6 PUFA and LA in organic compared to non-organic milk/dairy products. Palupi *et al*.([2](#_ENREF_2)) concluded that *“current regulation on dairy farming indeed enables the driving of organic farming to produce organic dairy products with different nutritional quality from conventional products”*.

Smith-Spangler *et al*.([3](#_ENREF_3)) extracted data from 37 studies reporting data for milk (30 on raw and 7 on pasteurised milk) and carried out weighted meta-analysis. Their published paper reported results for only 2 parameters, with significantly higher concentrations of *n*-3 PUFA (*P*<000.1; *n*=5) and VA (*P*<0.031; *n*=5) found in organic milk. Meta-analysis results for other milk quality parameters are said to be available as Supplement 6 on a website ([*www.annals.org*](http://www.annals.org))but could not be obtained from either the website or the authors. Despite showing organic milk has significantly higher *n*-3 PUFA concentrations, which Smith-Spangler *et al*.([3](#_ENREF_3)) describe as “*beneficial*” they conclude: *“The published literature lacks strong evidence that organic foods are significantly more nutritious than conventional foods.”* and describe *“Studies were heterogeneous and limited in number, and publication bias may be present”* as a main limitation of their study.

# 4. ADDITIONAL REFERENCES

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