Supplementary Materials

Bio or not to Bio? Organic food consumption in Switzerland

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Table S1: Overview of labels and brands of organic food products available in the Swiss market  a

|  |  |
| --- | --- |
| **Description** | **Labels and brands of organic food products** |
| Organic labels according to state organic regulations | Bio |
| EU-Bio |
| Brands and labels belonging to farmers’ b associations or clubs | Knospe Bio Suisse |
| Knospe Bio (Import) |
| Demeter |
| KAGfreiland |
| Natura-Beef |
| Brands and labels owned by retail companies | Naturaplan (Coop) |
| Migros Bio (Migros) |
| bio natur plus (Manor) |
| Nature Bio (Aldi) |
| Bio organic (Lidl) |
| Natur pur (Spar) |
| Fidelio1 |
| Brands of companies that process or trade exclusively organic products | biofarm |
| Alnatura |
| Rapunzel |

a Sources: Biobarometer, labelinfo.ch (1).

b For Swiss meat, supply butcher shops, gastronomy, retail trade.

Table S2: Description of the foods and beverages included in the 18 food groups a

|  |  |
| --- | --- |
| **Food groups** | **Included foods and beverages** |
| Alcoholic beverages | Beer, Wine, Wine products, Liquors, Cocktails, Spirits |
| Cakes and pies | Cakes, Pies, Strudel, Muffins, Sweet pastries, Biscuits, Crêpes, Waffles, Doughnuts |
| Cereals | Bread products, Croissants, Pasta (plain, stuffed), Rice, Spätzle, Cereal flakes and bran, Other grains (e.g., Quinoa, Couscous), Flours, Starches, All types of dough |
| Eggs and egg products | Eggs (all consumption forms), including eggs in recipes |
| Fats and oils | Butter, Other animal fats, Margarine, Other vegetable fats, Vegetable oil |
| Fish and seafood | Fish, Seafood, Processed fish (Fish in crumbs, …), Processed seafood (Surimi, …) |
| Fruits, nuts and seeds | All fruits (raw, cooked, dried, in compote, in pies), Dried nuts and seeds (Almonds, Coconut, Pumpkin Seeds, …), Olives  Except: Fruit juices, Fruit jams, Candied fruit, Small amounts of fruits contained in yogurts, Cakes, Ice cream, or other sweets |
| Legumes | Lentils, Chickpeas, Beans |
| Meat and meat products | Fresh meat and offal of mammals, Fresh meat and mammals of poultry, Wildmeat, Processed meat (Sausages, Cured meat, Meat-based spreads, …), Meat substitutes (Quorn, Tofu, …) |
| Milk and dairy products | Mammals’ milk, Fermented milk drinks, Yogurt drink and buttermilk (in liquid form), Mammals’ yogurt, Kefir, Mammals’ cream, Milk substitutes (soja yogurt, coconut drink, rice drink, …), Mammals’ fresh cheese (Curd, Cottage cheese, Ricotta, …), Mammals’ spread cheese, Melted cheese and soft cheese, Mammals’ hard cheese, Dairy desserts (crème, mousse, pudding, …), Ice cream (cream ice, sorbet, water ice) |
| Miscellaneous food | Dietetic products rich in proteins (Meal replacements, Protein shakes, Energy bars…), Sweeteners, Gelatine, Sulz, Pollen |
| Non-alcoholic beverages | Water, Tea, Coffee, Sweetened soft drinks, Energy drinks, Fizzy drinks, Ice tea, Diluted syrup, Fruit juices, Drinks made with fruit juices, Smoothies, Vegetable juices, Alcohol-free beers and wines |
| Potatoes and other starchy foods | Potatoes, Sweet potatoes, Potato based products (French fries, Gnocci, …), Topinambur, Manioc |
| Sauces and seasonings | Sauces rich in oil or butter (Mayonnaise, Pesto, Salad Dressing, …), Other sauces rich in cream or other fats (Cocktails sauce, Hummus, Satay sauce), Condiments (Spreads, Marinades, Vinegar, Mustard, Wasabi paste, …), Spices, Herbs, Yeast |
| Savoury snacks | Cocktail canapés, Crisps, Salty popcorn, Dried salty crackers, Crostini/bruschetta, Spring rolls, Ham croissant, Samosa and Sausage rolls |
| Soups and bouillons | Vegetable soups, Vegetable or meat broth, Miso soups, Mushroom soups |
| Sugar and chocolate | Sugar, Sweets, Syrup, Jams, Honey, Chocolate chips, Chocolate tablets, Chocolate powder, Chocolate icing |
| Vegetables | All vegetables, Green leaves, Sprouts, Mushrooms, Seaweeds, Sweet corn, Snow peas, Fresh green beans, Avocados and Onions: raw, cooked, dried, canned, in puree, pickled, in sauce (e.g., tomato sauce), on pizza and quiches, and in sandwiches  Except: Olives, Herbs, Vegetable juices, Vegetable soups, or if contained in small amounts in salty snacks, bread, nor sauces |

a This table is adapted from Krieger et al. (2019) (2).

Table S3. Contribution of different food groups to the total amount and number of organic foods consumed (n=575) abc

|  |  |  |
| --- | --- | --- |
|  | **Mean amount of food intake (g) d** | **Mean number of foods consumed d** |
| Overall | 100% | 100% |
| Non-alcoholic beverages | 37.9% | 13.6% |
| Alcoholic beverages | 0.3% | 0.1% |
| Cakes and pies | 0.3% | 0.8% |
| Miscellaneous foods | - | - |
| Eggs and egg products | 1.9% | 3.4% |
| Fats and oils | 1.7% | 9.4% |
| Fish and seafood | 0.0% | 0.0% |
| Meat and meat products | 1.0% | 1.8% |
| Fruits, nuts and seeds | 15.7% | 22.5% |
| Vegetables | 7.8% | 9.9% |
| Cereals | 6.1% | 9.5% |
| Legumes | 1.1% | 0.6% |
| Potatoes and other starchy foods | 0.2% | 0.3% |
| Milk and dairy products | 22.3% | 16.8% |
| Savoury snacks | 0.1% | 0.2% |
| Soups and bouillons | 0.6% | 0.3% |
| Sauces and seasonings | 0.8% | 3.4% |
| Sugar and chocolate | 2.2% | 7.4% |

a All results were weighted for sex, age, marital status, major region of Switzerland, nationality, household size, season, and weekday of the data collection.

b The mean amount and number of foods consumed were derived from the average value of the two 24HDRs.

c A detailed description of the foods included in various food groups can be found in Table S2.

e Percentages represent the contribution of different food groups to the total amount and number of organic foods consumed.

Table S4. Univariate association between organic food consumption and sociodemographic, anthropometric, and lifestyle factors based on univariate analyses (n=2,057) abc.

|  |  |  |
| --- | --- | --- |
|  | Organic food consumers | |
|  | OR | 95% CI |
| Sex |  |  |
| Males | 1 |  |
| Females | 2.54 | [2.03; 3.17] |
| Age group d |  |  |
| 18–29 years | 0.55 | [0.41; 0.75] |
| 30–44 years | 1 |  |
| 45–59 years | 0.92 | [0.72; 1.17] |
| 60–75 years | 0.84 | [0.64; 1.10] |
| Language region e |  |  |
| German-speaking region | 1 |  |
| French-speaking region | 0.77 | [0.61; 0.97] |
| Italian-speaking region | 0.69 | [0.44; 1.09] |
| Nationality |  |  |
| Swiss only | 1 |  |
| Swiss binational | 0.90 | [0.68; 1.21] |
| Non-Swiss | 0.90 | [0.71; 1.14] |
| Education, highest degree |  |  |
| Primary / no degree | 1.10 | [0.68; 1.79] |
| Secondary | 1 |  |
| Tertiary | 1.52 | [1.24; 1.86] |
| Household size |  |  |
| 1–2 people | 1 |  |
| 3–4 people | 0.80 | [0.64; 0.98] |
| 5–6 people | 0.57 | [0.39; 0.84] |
| Gross household income |  |  |
| < 6,000 (CHF / month) | 0.90 | [0.68; 1.19] |
| 6,000–13,000 (CHF / month) | 1 |  |
| > 13,000 (CHF / month) | 1.09 | [0.81; 1.47] |
| BMI categories f |  |  |
| Underweight | 1.48 | [0.83; 2.66] |
| Normal weight | 1 |  |
| Overweight | 0.61 | [0.49; 0.77] |
| Obese | 0.42 | [0.30; 0.59] |
| Self-reported physical activity |  |  |
| Low | 1 |  |
| Moderate | 1.32 | [0.92; 1.90] |
| High | 1.08 | [0.78; 1.51] |
| Smoking status |  |  |
| Never | 1 |  |
| Former | 0.97 | [0.78; 1.21] |
| Current | 0.65 | [0.50; 0.84] |
| Self-reported health |  |  |
| Good to very good | 1 |  |
| Very bad to medium | 0.71 | [0.52; 0.97] |
| Diet quality score AHEI |  |  |
| Q1 (13.7–34.5 points) | 1 |  |
| Q2 (> 34.5–41.6 points) | 2.19 | [1.48; 3.22] |
| Q3 (> 41.6–48.2 points) | 2.66 | [1.82; 3.88] |
| Q4 (> 48.2–55.7 points) | 4.85 | [3.35; 7.02] |
| Q5 (> 55.7–91.4 points) | 6.89 | [4.77; 9.95] |

OR, odds ratio. CI, confidence interval. CHF, Swiss francs. BMI, Body Mass Index. AHEI, Alternate Healthy Eating Index.

a OR and 95% CI were derived from univariate binomial logistic regression models; bolded values represent statistically significant results (*p*-value < 0.05); multiple imputation by chained equations was used to address missing values.

b OR equal to 1 represents the reference category.

c All results were adjusted for mean energy intake, season, and weekday and weighted for sex, age, marital status, major area of Switzerland, nationality, and household size.

d Age groups are based on self-reported age on the day that the sociodemographic and lifestyle questionnaire was filled out.

e German-speaking region: Aargau, Basel-Land, Basel-Stadt, Bern, Lucerne, St. Gallen, Zurich cantons; French-speaking region: Geneva, Jura, Neuchatel, Vaud cantons; Italian-speaking region: Ticino canton.

f BMI was obtained from measured weight and height, with self-reported weight or height used when measurements were impossible; for pregnant and lactating women, self-reported weight before pregnancy was used. BMI categories were defined according to standards of the World Health Organization (underweight: BMI < 18.5 kg/m2; normal weight: 18.5 kg/m2 ≥ BMI < 25.0 kg/m2; overweight: 25.0 kg/m2 ≤ BMI < 30.0 kg/m2; obese: BMI ≥ 30.0 kg/m2).

References Supplementary Materials

1. Nowack K & Oehen B (2020) Die wichtigsten schweizerischen Bio-Label und-Marken im Überblick. Basel / Frick: Bio Suisse / Forschungsinstitut für biologischen Landbau FiBL. <https://www.bioaktuell.ch/fileadmin/documents/ba/Aktuell/200115-labels-2020-version-biosuisse-fibl.pdf> (accessed April 2023).

2. Krieger J-P, Pestoni G, Cabaset S, et al. (2019) Dietary Patterns and Their Sociodemographic and Lifestyle Determinants in Switzerland: Results from the National Nutrition Survey menuCH. *Nutrients* 11.