

# Individual diet optimization on French adults shows that plant-based “dairy-like” products may complement dairy in sustainable diets

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## Online Supplementary Material

### Supplemental File S2. Results in men

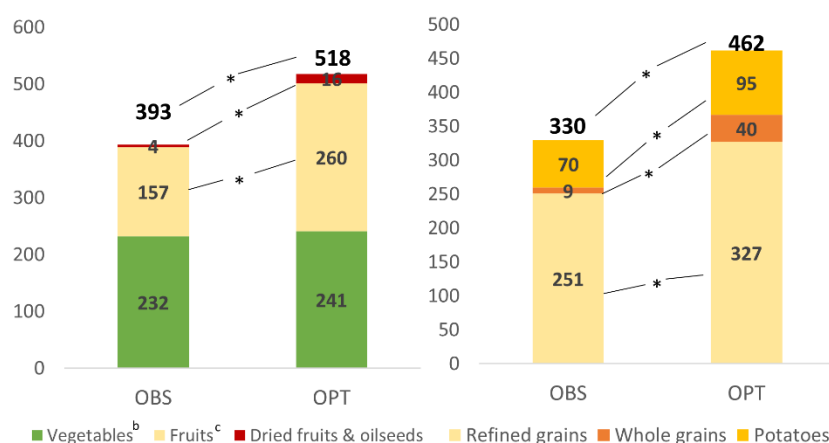
Supplemental file S2, Table S2. Mean daily energy intake, total food quantity consumed, carbon impact and indicators of the nutritional quality of men’s observed diets (n=752) according to PBDL product consumption

	All (n=752)	PBDL product non-consumers (n=733)	PBDL product consumers (n=19)		
	Mean ± SD	Mean	Mean	Pval*	Pval†,§
Energy intake (kcal/d)	2568.2 ± 584.6	2570.5 ± 586.5	2480.3 ± 512.3	0.507	0.35
Total quantity (g/d)	2899.9 ± 770.2	2891.7 ± 768.8	3210 ± 778.7	0.075	0.146
Liquid quantity (g/d)	1595 ± 644.5	1589.4 ± 642.7	1810.5 ± 693.9	0.14	0.229
Solid quantity (g/d)	1304.8 ± 350.9	1302.4 ± 349.8	1399.6 ± 390.7	0.233	0.325
PBDL products (g/d)	2.6 ± 23.1	0 ± 0	104.1 ± 105.3	<0.001	<0.001
Energy density£ (kcal/g)	180.8 ± 31.6	181 ± 31.5	169.7 ± 33.8	0.123	0.094
MAR (mean adequacy ratio) (%)	86.1 ± 9	86 ± 9	87.9 ± 9.3	0.367	0.644
MER (mean excess ratio) (%)	146 ± 34.6	146 ± 34.6	145 ± 34	0.898	0.849
Carbon impact (g CO2eq/d)	4881.7 ± 1239.9	4906.5 ± 1238.4	3923.9 ± 879.1	0.001	<0.001
Total quantity of animal products (g/d), ¥	480.3 ± 191.6	483.8 ± 192	343.3 ± 110.9	0.002	<0.001
No. of different consumed foods per week	53 ± 13.2	52.8 ± 13.2	60.7 ± 11	0.009	0.034

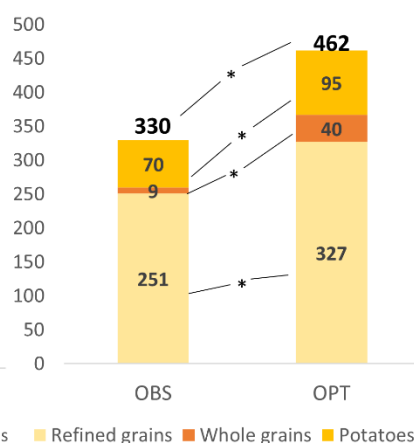
\* Test of the differences in intake or indicators between PBDL product consumers and non-consumers, using a linear generalized model; † Test with adjustment for total energy intake, age, family status, educational level and physical activity level (energy intake adjustment was removed from the difference in energy intakes test).; ¥ Total quantity of animal products consumed, including all meat, eggs, fish and dairy products as well as animal products present as ingredients in mixed dishes; £ Energy density was calculated on consumed solid foods only. MAR: mean adequacy ratio; MER: mean excess ration; PBDL: plant-based “dairy-like”.

**Supplemental file S2, Figure S1. Mean quantities of Fruits & vegetables, Grains & potatoes, Meat/fish/eggs & legumes, Dairy products & alternatives, Sweetened & salty products, Water & drinks groups and subgroups in the observed diets of French men (n=739) and in their optimized diets (n=739).**

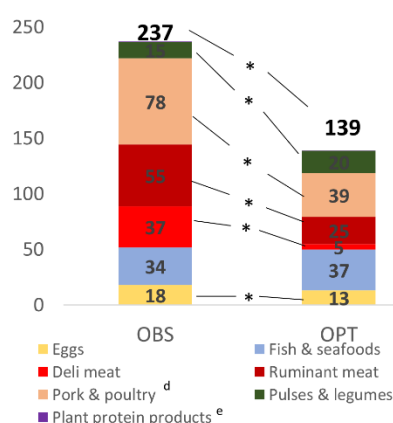
### Fruits & vegetables<sup>a</sup>



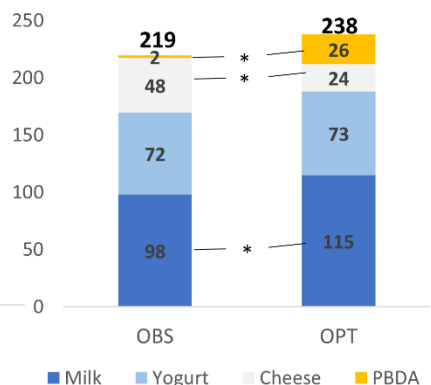
### Grains & potatoes



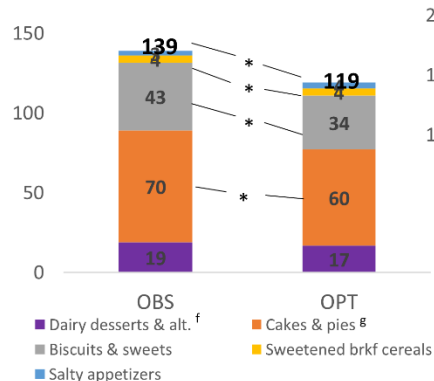
### Meat/fish/eggs & legumes



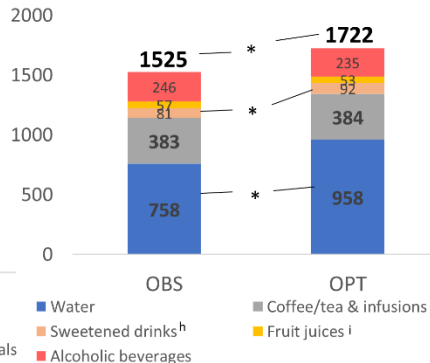
### Dairy products & alternatives



### Sweetened & salty products



### Water & drinks



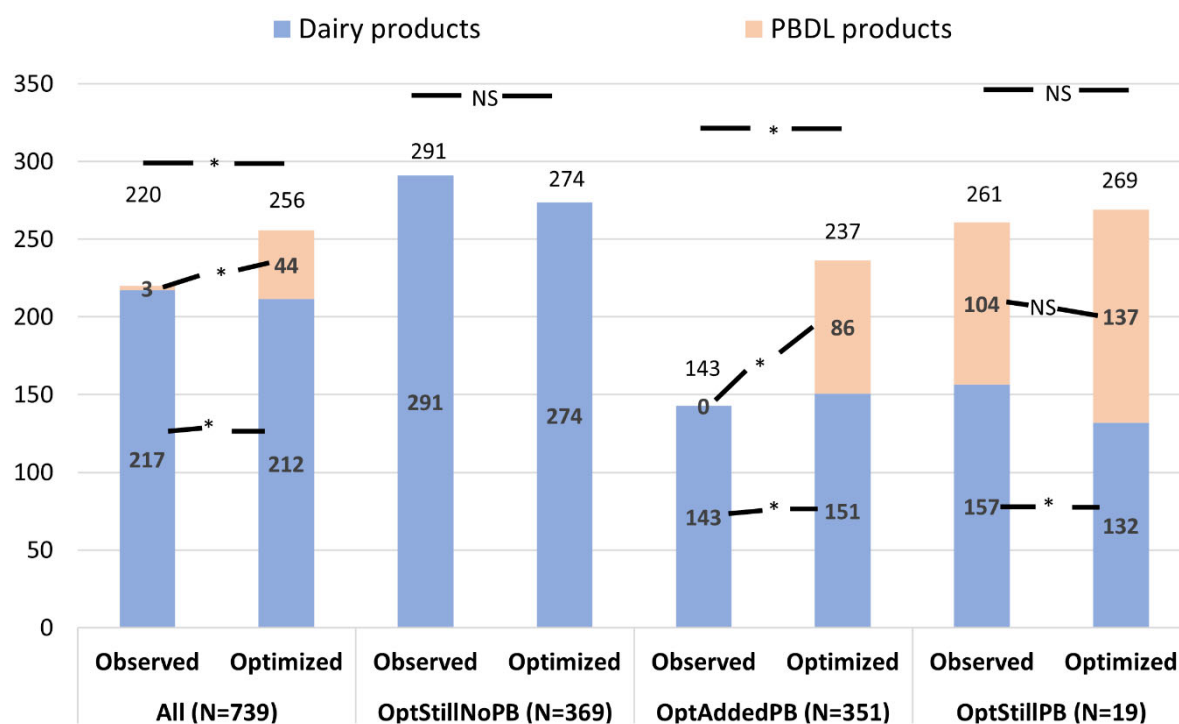
OBS, observed diet; OPT, optimized diet \*Indicates significantly different quantities ; <sup>a</sup>including oilseeds; <sup>b</sup>including soups ; <sup>c</sup>including processed fruits, excluding fruit juices ; <sup>d</sup>including offal ; <sup>e</sup>including tofu ; <sup>f</sup>including PB desserts ; <sup>g</sup>including pastries ; <sup>h</sup>including PB drinks ; <sup>i</sup>fruit juices with no added sugar ; The total quantity of "Fats & seasoning" (not displayed in Fig. 1) decreased from 57.1 g in observed diets to 43.4 g in optimized ones. Composite dishes were disaggregated within subgroups.

**Supplemental file S2, Table S3. Mean energy content, mean diet weight and mean dairy products & alternatives quantities (g/d) in observed diets and diets optimized with the “SUS-All-Foods” set of models, according to the tracking of PBDL product in the optimized diets£: i.e. OptStillNoPB (n=369), OptAddedPB (n=351) and OptStillPB (n=19)**

	OptStillNoPB (n=369)		OptAddedPB (n=351)		ObsStillPB (n=19)		Pval observed*	Pval optimized *
	Observed ± SD	Optimised ± SD	Observed ± SD	Optimised ± SD	Observed ± SD	Optimised ± SD		
Total energy content (kcal/d)	2822.8 ± 521.2	2799.7 <sup>ns</sup> ± 511.5	2293.5 ± 400.1	2282.9 <sup>ns</sup> ± 390.4	2470.3 ± 508.1	2452.9 <sup>ns</sup> ± 494.1	<.0001	<.0001
Total diet weight (g/d)	3240.3 ± 713.8	3395 ± 505.6	2525.7 ± 597.8	3072.2 ± 291.9	3210 ± 778.7	3373.7 ± 525.7	<.0001	<.0001
Dairy products & alternatives	291 ± 219.5	273.6 <sup>ns</sup> ± 191.5	142.9 ± 97.7	200 ± 111.8	244.5 ± 147.3	241.9 <sup>ns</sup> ± 141	<.0001	<.0001
Milk	148.2 ± 190.8	158.6 <sup>ns</sup> ± 169.3	47.2 ± 82.9	72 ± 89.2	54.4 ± 109.1	51.7 <sup>ns</sup> ± 110.1	<.0001	<.0001
Yoghurt	89.8 ± 100.6	91.4 <sup>ns</sup> ± 99.8	53.8 ± 63	55.2 <sup>ns</sup> ± 63	56.7 ± 52.7	56.7 <sup>ns</sup> ± 52.7	<.0001	<.0001
Cheese	53 ± 35.3	23.6 ± 18.8	41.9 ± 26.1	23.6 ± 17.2	45.5 ± 24.1	23.5 ± 20.8	<.0001	0.87
PBDAs	0 ± 0	0 ± 0	0 ± 0	49.3 ± 67	87.9 ± 97.8	110 <sup>ns</sup> ± 107.2	<.0001	<.0001
Sweetened & salty products	156 ± 97.7	140.1 ± 86.4	117.6 ± 78.8	94.5 ± 67.1	196.6 ± 104.2	163.1 <sup>ns</sup> ± 100.1	<.0001	<.0001
Incl. PB desserts	0 ± 0	0 ± 0	0 ± 0	1.4 ± 7.8	16.2 ± 52.8	18.7 <sup>ns</sup> ± 53.1	<.0001	<.0001
Water & drinks	1697.2 ± 684.5	1767.2 <sup>ns</sup> ± 561.8	1334 ± 557.6	1668 ± 363.6	1709 ± 717.9	1839 <sup>ns</sup> ± 566.3	<.0001	0.196
Incl. PB drinks	0 ± 0	0 ± 0	0 ± 0	35 ± 54.4	0 ± 0	8.4 <sup>ns</sup> ± 18.8	.	<.0001

\*p-value of a general linear model test used to assess the difference in food intake in observed or optimized diets between the tracking of PBDL products, adjusted for age, family status, educational level and physical activity level; ns indicates food groups or subgroups for which the differences (accounted for repeated measurements) between observed and optimized diets were not significant ( $p>0.05$ ) among OptStillNoPB, OptStillPB or OptAddedPB men; £ Individuals with no PBDL product in their observed and optimized diets were categorized as OptStillNoPB. Individuals without PBDL products in their observed diet but with an addition of said products to their optimized diet were categorized as OptAddedPB. Individuals with PBDL products in both their observed and optimized diets were categorized as OptStillPB. The distinction between OptStillNoPB, OptAddedPB and OptStillPB also refer to the “tracking” of PBDL products (i.e. presence of PBDL products in optimized diets and novelty or not vs observed diet). PB: plant-based; PBDAs: plant-based dairy alternatives; PBDL: plant-based “dairy-like”

Supplemental File S2, Figure S2. Dairy products and PBDL products (g/d) in observed and optimized diets, according to PBDL product tracking sub-populations



PBDL products include PBDAs (soy-based drinks, soy-based alternatives to plain yoghurt and soy-based alternatives to fruit yogurt), PB desserts (soy-based desserts) and PB drinks (almond-based drinks and oat-based drinks); \* p-value <0.05

Supplemental File S2. Figure S3. Percentage of men having PBDL products in observed and optimized diets, using fortified (A) or unfortified (B) PBDL products.

