



Supplementary Figure S1. Screeplots of scaled and centered principal component analysis of dough and bread colours (a) and dough and bread textures (b).

Supplementary Table S1. Medians water binding capacity (WBC) and least gelation concentration (LGC) of raw materials.

Sample	WBC / %	LGC / %
HSG	2.0	16
HPF	1.4	18
HP46	1.5	14
HP54	1.2	22
WFM	1.1	16

Supplementary Table S2. Median colour measurements of raw materials, doughs and breads.

Sample	L*	a*	b*
HSG	55.7	3.1	12.6
HPF	60.1	5.2	17.9
HP46	55.2	5.4	18.7
HP54	73.0	9.4	25.2
WFM	89.2	3.4	10.0
HSG-1-D	71.6	8.0	18.3
HPF-1-D	68.8	7.8	19.4
HP46-1-D	69.2	7.9	19.3
HP54-1-D	70.8	8.6	19.5
HPF-18-D	51.4	5.4	16.9
HP46-14-D	54.1	5.6	19.1
HP54-10-D	67.2	9.3	23.8
WFM-D	71.5	8.6	19.0
HSG-1-B	64.9	8.0	17.3
HPF-1-B	59.4	8.3	17.8
HP46-1-B	59.8	7.8	17.4
HP54-1-B	63.0	9.1	19.4

HPF-18-B	43.5	4.2	8.3
HP46-14-B	47.8	5.2	11.8
HP54-10-B	56.9	9.7	20.5
WFM-B	64.0	8.6	18.1

Supplementary Table S3. Medians for stickiness of dough (D) and hardness, cohesion, elasticity, gumminess, chewiness of breads (B).

	Stickiness (D) / N	Hardness (B) / N	Cohesion (B)	Elasticity (B)	Gumminess (B) / N	Chewiness (B) / N
HSG-1	-0.66	7.84	0.97	1.06	7.62	8.09
HPF-1	-0.35	8.58	0.92	1.06	8.09	8.60
HP46-1	-0.53	6.22	0.96	1.05	6.06	6.35
HP54-1	-0.25	13.61	0.88	1.06	12.05	12.82
HPF-18	-0.70	14.70	0.90	1.09	13.26	14.45
HP46-14	-0.70	15.55	0.92	1.10	14.04	15.30
HP54-10	-0.42	7.74	1.11	1.13	7.84	8.77
WFM	-0.55	6.00	1.05	1.08	6.31	6.81

Supplementary Table S4. Loadings for principle component analysis of raw materials, doughs and breads.

Loading for PC1–5 of PCA of raw materials (figure 2)					
Parameter	PC1	PC2	PC3	PC4	PC5
Dry matter	0.18282	0.25964	0.47309	0.16624	-0.49612
Water binding capacity	-0.36067	0.23391	0.00062	0.03413	0.22485
Least gelation concentration	0.29910	0.18229	0.27958	-0.73206	-0.08884
d(0.5)	-0.37552	0.16181	0.17965	-0.22127	0.27481
RR	0.13863	-0.41068	0.13523	-0.14887	-0.23983
Energy	-0.35566	0.11197	0.334024	-0.00595	0.05236
Protein	0.24813	0.34501	0.02958	0.42121	0.16972
Fat	-0.35422	0.19631	0.21703	-0.17020	-0.06459
Carbo-hydrates	-0.00833	-0.43403	0.15543	0.08662	0.00214
Dietary Fiber	0.08137	0.18452	-0.59916	-0.37174	-0.00155
L*	0.14746	-0.37862	0.27280	-0.10215	0.59325
a*	0.37142	0.18517	0.16855	0.01398	0.36955
b*	0.32692	0.28217	0.04397	0.03775	0.19532
Loading for PCA of doughs (figure 3a)					
Parameter	PC1	PC2	PC3	PC4	PC5
L*	0.39145	0.92006	-0.01584		
a*	0.65239	-0.26534	0.70992		
b*	0.64897	-0.28823	-0.70410		
Loading for PC1–5 PCA of breads (figure 3b)					
Parameter	PC1	PC2	PC3	PC4	PC5
Hardness	0.52532	0.02613	-0.05242	0.21382	-0.80387
Cohesion	-0.38481	-0.55038	-0.09878	0.73119	-0.06313
Elasticity	0.13209	-0.75596	-0.32277	-0.54789	-0.07139
Gumminess	0.52360	-0.05844	-0.07011	0.27043	0.25652
Chewiness	0.52033	-0.10839	-0.07715	0.20590	0.52794
Stickiness	0.11671	-0.33131	0.93405	-0.06270	-0.01360