

Table S2 Compositional changes in the profile of small water-soluble carbohydrates (SWSC) and non-water-soluble carbohydrates (NWSC) in mg/kernel throughout grain development of bread wheat cv. ‘Arnold’ on a single kernel basis.

Trait ¹	Days after anthesis							
	7	11	14	18	25	33	39	46
SWSC	0.9 ^{bc}	1.0 ^b	1.3 ^a	1.3 ^a	1.2 ^a	0.8 ^{cd}	1.0 ^{bc}	0.8 ^d
GAL	0.002 ^g	0.004 ^f	0.005 ^e	0.007 ^c	0.01 ^a	0.009 ^b ^e	0.007 ^{cd}	0.006 ^{de}
GLU	0.2 ^d	0.3 ^{bc}	0.3 ^{ab}	0.3 ^a	0.3 ^c	0.04 ^e	0.02 ^e	0.02 ^e
FRU	0.4 ^a	0.4 ^a	0.4 ^a	0.4 ^a	0.3 ^b	0.04 ^c	0.02 ^c	0.02 ^c
SUC	0.005 ^c	0.01 ^c	0.02 ^c	0.02 ^c	0.03 ^c	0.3 ^b	0.3 ^a	0.3 ^a
RAF	0.01 ^d	0.02 ^d	0.03 ^d	0.03 ^d	0.06 ^c	0.2 ^c	0.2 ^c	0.1 ^b
STA	0.001 ^c	0.004 ^b	0.05 ^a	n.d.	n.d.	n.d.	n.d.	n.d.
VER	0.1 ^c	0.2 ^b	0.2 ^a	0.2 ^b	0.03 ^d	0.01 ^e	0.004 ^e	0.006 ^e
MAL	0.07 ^e	0.08 ^e	0.2 ^c	0.2 ^{bc}	0.3 ^a	0.2 ^{cd}	0.2 ^b	0.1 ^d
FOS	0.06 ^c	0.07 ^c	0.08 ^c	0.1 ^{ab}	0.1 ^{ab}	0.1 ^b	0.1 ^a	0.1 ^{ab}
NWSC	1.3 ^a	5.6 ^{ab}	13.4 ^b	26.8 ^c	40.9 ^d	38.0 ^d	38.6 ^d	43.0 ^d
WU-GAL	0.02 ^d	0.05 ^d	0.05 ^d	0.1 ^c	0.2 ^b	0.3 ^a	0.2 ^{ab}	0.2 ^{ab}
WU-AX	0.3 ^d	1.1 ^{cd}	2.3 ^{bc}	4.0 ^a	4.5 ^a	3.9 ^a	3.7 ^a	3.4 ^{ab}
ARA/XYL	0.05 ^e	0.1 ^e	0.1 ^e	0.2 ^d	0.3 ^c	0.4 ^a	0.4 ^{ab}	0.3 ^{bc}
STARCH	0.9 ^d	4.5 ^{cd}	11.1 ^c	22.6 ^b	36.3 ^a	33.8 ^a	34.7 ^a	39.5 ^a

¹ SWSC, small water-soluble carbohydrates; GAL, galactose; GLU, glucose; FRU, fructose; SUC, sucrose; RAF, raffinose; STA, stachyose; VER, verbascose; MAL, maltose; FOS, short-chain fructooligosaccharides (sum of GF2, GF3 and GF4); NWSC, non-water-soluble carbohydrates; WU-GAL, water-unextractable galactose; WU-AX, water-unextractable arabinoxylans (sum of arabinose and xylose after acid hydrolysis); ARA/XYL, arabinose/xylose ratio; STARCH, starch. Means denoted by a different letter indicate significant differences between treatments ($p < 0.05$).