

Supplementary Material

Table S1. Correlation coefficients and p-values for different morphological traits in A-genome donor diploid wheat.

		PH	DH	FLL	FLD	PdL	Till	SpL	SpS	TBM	SWsp	NSS
DH	r	0.6129										
	p-val	<0.0001										
FLL	r	0.3341	0.516									
	p-val	<0.0001	<0.0001									
FLD	r	0.4005	0.5115									
	p-val	<0.0001	<0.0001	<0.0001								
PdL	r	0.6366	0.321	0.1917	0.2759							
	p-val	<0.0001	0.0011	0.0561	0.0055							
Till	r	0.5308	0.7303	0.274	0.2657	0.1934						
	p-val	<0.0001	<0.0001	0.0058	0.0075	0.0539						
SpL	r	0.5285	0.5282	0.4859	0.5114	0.3189	0.3535					
	p-val	<0.0001	<0.0001	<0.0001	<0.0001	0.0012	0.0003					
SpS	r	0.4691	0.8825	0.4502	0.4194	0.1684	0.6789	0.3894				
	p-val	<0.0001	<0.0001	<0.0001	<0.0001	0.094	<0.0001	<0.0001				
TBM	r	0.4894	0.812	0.398	0.3466	0.1725	0.6364	0.3095	0.8895			
	p-val	<0.0001	<0.0001	<0.0001	0.0004	0.0861	<0.0001	0.0017	<0.0001			
SWsp	r	0.5348	0.8511	0.6208	0.5662	0.2872	0.5634	0.4341	0.8497	0.7199		
	p-val	<0.0001	<0.0001	<0.0001	<0.0001	0.0038	<0.0001	<0.0001	<0.0001	<0.0001		
NSS	r	0.449	0.7614	0.4867	0.5527	0.2964	0.4371	0.4018	0.6873	0.5473	0.8698	
	p-val	<0.0001	<0.0001	<0.0001	<0.0001	0.0027	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	
GY	r	-0.026	0.4943	0.1683	0.1631	-0.0485	0.307	0.1163	0.4086	0.2416	0.3493	0.2948
	p-val	0.797	<0.0001	0.0942	0.1049	0.6316	0.0019	0.2492	<0.0001	0.0155	0.0004	0.0029

PH: Plant Height, DH: Days to Heading, FLL: Flag Leaf Length, FLD: Flag Leaf Diameter, PdL: Peduncle Length, Till: Tillers per plant, SpL: Spike Length, SpS: Number of Spikelets Per Spike, TBM: Total BioMass, SWsp: Seed Weight per Spike, NSS: Number of Seeds per Spike, GY: Grain Yield. The correlations are estimated by the Row-wise method.

Table S2. Eigenvalues contributing to different PCs for morphological traits in A-genome donor diploid studied wheat traits.

Component	Eigenvalue	Percent	Cum Percent	ChiSquare	DF	Prob>ChiSq
1	6.3351	52.793	52.793	1044.67	60.997	<0.0001*
2	1.5273	12.728	65.520	521.982	60.568	<0.0001*
3	1.1248	9.373	74.894	414.938	51.549	<0.0001*
4	0.7604	6.336	81.230	327.494	42.828	<0.0001*
5	0.6719	5.599	86.829	272.962	34.228	<0.0001*
6	0.4306	3.589	90.418	208.992	26.611	<0.0001*
7	0.3905	3.254	93.672	176.661	19.772	<0.0001*
8	0.3379	2.816	96.488	134.547	13.791	<0.0001*
9	0.2219	1.849	98.336	74.026	9.068	<0.0001*
10	0.1015	0.846	99.183	16.900	4.921	0.0044*
11	0.0511	0.426	99.609	0.163	1.846	0.9021
12	0.0469	0.391	100.000	0.000	.	.