Supplementary Materials:

Supplementary Table S1. The main biological traits and their criteria for evaluation

Agronomic traits	Statistical criteria for agronomic traits
Plant height	Distance from the base of the stem to the apex of the longest stem, unit: cm;
Flag leaf length	Distance from leaf base to tip of the longest leaf, unit: cm;
Flag leaf width	Leaf width from leaf base to the third, unit: cm;
Second section's stem length	Length of the second stem, unit: cm;
Second section's stem diameter	Width of the second stem, unit: cm;
Number of main stem nodes	Number of nodes of the main stem of the plant, unit: nodes;
Number of spikes per plant	Several spikes per plant, unit: spike.
Plant growth period	1: The length of the second stem in the seedling stage, unit: cm; 2：Jointing stage; 3：Heading period; 4：Florescence; 5：Mature period.
Tillering	1：None tillering (number of tillers =0); 2: Weak tillering (number of tillers =1); 3. Moderate tillering (number of tillers =2); 4. Strong tillering (number of tillers =3); 5. Very strong tillering (number of tillers ≥4).
branchiness	1: No branching (number of branches =0); 2: weak branching (number of branches =1); 3: Medium branching (number of branches =2); 4. Strong branching (number of branches =3); 5: Very strong branching (number of branches ≥4).
Spike type	1: Tight; 2: Medium tight; 3: Medium dispersion; 4. Lateral dispersion; 5: Around dispersion.
Spike shape	1: Spindle-shaped; 2: Cylindrical; 3: Rod shape; 4: Cup shape; 6: Spherical; 7: Umbrella-type; 8: Broom shape.
Glume color	1: White; 2: Yellow; 3: Grey; 4: Red; 5: Brown; 6: Purple; 7: Black.
Chaff coating degree	1: Naked; 2: Coating 1/4; 3: Coating 1/2; 4: Coating 3/4; 5: All coated.
Abortion degree	1. Unbeaten; 2. Minority abortion;

Agronomic traits	Statistical criteria for agronomic traits
	3: Majority abortion.

Supplementary Table S2. Primer information for the *SbGA2o3* gene

Primer	Primer sequence(5′-3′)	Annealing temperature(°C)	Size of PCR products (bp)
SbGA2o3F1	TGCATCCTTTTCGTCTCCCT	62.0	825
SbGA2o3R1	GCAAAGCAGGGGTCAATCAA	57.4	825
SbGA2o3F2	TTGATTGACCCCTGCTTTGC	56.1	819
SbGA2o3R2	AGACTTGAGGCTGTTGGTCA	56.1	819
SbGA2o3F3	GCCCAGTTTGAGAAGCGTAG	56.4	801
SbGA2o3R3	GAACCAAACAGAGGCGAGTG	56.4	801
SbUBQ10QPCRF	CCGTGGTGGCCAGTAAGTTC	55.7	
SbUBQ10QPCRR	GGACTCAACATGGGCTCTGC	55.7	
SbGA2o3 QPCRF	GGTGACCAACAGCCTCAAGT	55.7	
SbGA2o3 QPCRR	TACGCGGCCTTCTTGTACTC	55.7	