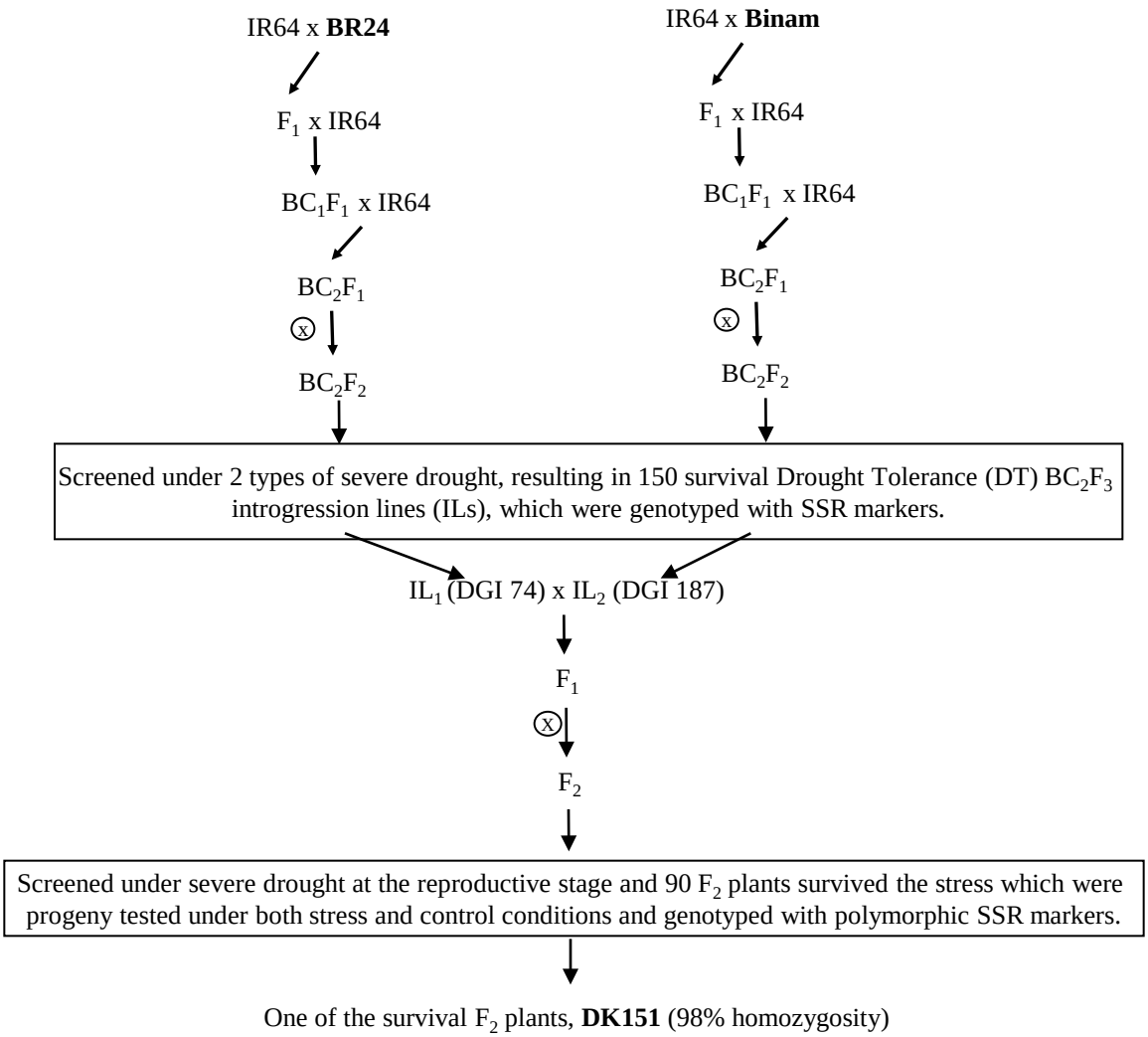

Fig. S1. The BC breeding and intercross procedures for developing drought tolerant introgression lines (DGI 74 and DGI187) and the pyramiding line, DK151 using IR64 (the recipient) and 2 donors, BR24 and Binam. The two types of drought stress for screening the BC_2 populations included the lowland drought at the reproductive stage and the chronic drought under the upland conditions (Lafitte et al. 2006).

Table S1. Adapter and Primer Sequences

Adapter and Primer	*EcoR* I	*Hpa* II/ *Msp* I
Adapter 1	5'-CTCGTAGACTGCGTACC-3'	5'-GACGATGAGTCTAGA A-3'
Adapter 2	5'-AATTGGTACGCAGTCTAC-3'	5'-CGTTCTAGACTCATC-3'
Pre-Amplification Primer	5'-GACTGCGTACCAATTCA-3'(E1)	5'-GATGAGTCTAGAACGGT-3'(HM1)
Selective Primer	E1+TA(E01)	HM1+AA(HM31)
	E1+TG(E02)	HM1+AG(HM32)
	E1+TC(E03)	HM1+AC(HM33)
	E1+GA(E04)	HM1+AT(HM34)
	E1+GC(E05)	HM1+GA(HM35)
	E1+GT(E06)	HM1+GT(HM36)
	E1+CA(E07)	HM1+GG(HM37)
	E1+CG(E08)	HM1+GC(HM38)
	E1+CT(E09)	HM1+CA(HM39)
	E1+CC(E10)	HM1+CT(HM310)
		HM1+CG(HM311)
		HM1+CC(HM312)
		HM1+TA(HM313)
		HM1+TG(HM314)
		HM1+TC(HM315)
		HM1+TT(HM316)

Table S2. Alteration of DNA methylation pattern of DK151 and IR64 under 3 water conditions

Band Pattern	Control		Stress		Recovery		DNA methylation pattern			Tillering stage				Booting stage		Heading stage	
										Leaf	Root	Leaf	Root	Leaf	Leaf	Leaf	Leaf
	H	M	H	M	H	M	Control	Stress	Recovery	DK151	DK151	IR64	IR64	DK151	IR64	DK151	IR64
a1	-	-	+	+	-	-	CCGG	CCGG	CCGG	11	12	10	16	0	0	23	0
							GGCC	GGCC	GGCC								
a2	-	-	-	+	-	-	CCGG	CCGG	CCGG	2	10	0	10	0	0	2	0
							GGCC	GGCC	GGCC								
a3	-	-	+	-	-	-	CCGG	CCGG	CCGG	61	60	60	44	6	5	4	6
							GGCC	GGCC	GGCC								
a4	-	+	+	+	-	+	CCGG	CCGG	CCGG	4	6	4	5	0	3	2	2
							GGCC	GGCC	GGCC								
a5	+	-	+	+	+	-	CCGG	CCGG	CCGG	1	0	1	0	0	0	0	0
							GGCC	GGCC	GGCC								
b1	-	-	+	+	+	+	CCGG	CCGG	CCGG	0	10	0	10	0	0	0	0
							GGCC	GGCC	GGCC								
b2	-	-	-	+	-	+	CCGG	CCGG	CCGG	1	2	0	4	0	0	0	0
							GGCC	GGCC	GGCC								
b3	-	-	+	-	+	-	CCGG	CCGG	CCGG	11	7	10	9	0	0	0	1
							GGCC	GGCC	GGCC								
b4	-	+	+	+	+	+	CCGG	CCGG	CCGG	11	4	16	4	0	0	0	0
							GGCC	GGCC	GGCC								
c1	-	-	+	+	-	+	CCGG	CCGG	CCGG	0	0	0	3	0	0	0	0
							GGCC	GGCC	GGCC								
c2	-	-	+	+	+	-	CCGG	CCGG	CCGG	0	0	0	2	0	0	0	0

							GGCC	GGCC	GGCC								
c3	-	+	+	+	-	-	CCGG	CCGG	CCGG	0	1	0	1	0	0	0	0
							GGCC	GGCC	GGCC								
c4	+	-	+	+	-	-	CCGG	CCGG	CCGG	0	1	0	1	0	0	0	0
							GGCC	GGCC	GGCC								
d1	+	+	-	+	+	+	CCGG	CCGG	CCGG	3	7	4	1	1	1	2	1
							GGCC	GGCC	GGCC								
d2	+	-	-	-	+	-	CCGG	GGCC	CCGG	5	5	6	2	2	4	2	1
							GGCC	CCGG	GGCC								
d3	+	+	-	-	+	+	CCGG	GGCC	CCGG	1	7	0	5	0	0	10	0
							GGCC	CCGG	GGCC								
d4	-	+	-	-	-	+	CCGG	GGCC	CCGG	2	1	2	0	0	0	4	0
							GGCC	CCGG	GGCC								
e1	+	-	-	-	-	-	CCGG	GGCC	GGCC	5	6	8	5	0	0	1	2
							GGCC	CCGG	CCGG								
e2	+	+	-	-	-	-	CCGG	GGCC	GGCC	0	3	1	6	0	0	2	0
							GGCC	CCGG	CCGG								
e3	-	+	-	-	-	-	CCGG	GGCC	GGCC	1	2	0	1	1	0	0	0
							GGCC	CCGG	CCGG								
e4	+	+	-	+	-	+	CCGG	CCGG	CCGG	5	10	1	1	1	0	0	0
							GGCC	GGCC	GGCC								
f1	+	+	-	-	+	-	CCGG	GGCC	CCGG	0	0	0	1	0	0	0	0
							GGCC	CCGG	GGCC								
f2	+	+	-	-	-	+	CCGG	GGCC	CCGG	0	1	0	0	0	0	0	0
							GGCC	CCGG	GGCC								

f3	+	-	-	-	+	+	CCGG GGCC	GGCC CCGG	CCGG GGCC	0	3	1	3	0	0	0	0
g1	+	+	+	+	+	-	CCGG GGCC	CCGG GGCC	CCGG GGCC	0	0	1	0	0	0	0	0
g2	+	+	+	+	-	-	CCGG GGCC	CCGG GGCC	CCGG GGCC	1	2	0	2	0	0	0	0
g3	+	-	+	-	-	-	CCGG GGCC	CCGG GGCC	CCGG GGCC	6	3	2	1	1	0	0	1
g4	-	-	-	-	+	+	CCGG GGCC	CCGG GGCC	CCGG GGCC	7	13	7	15	0	0	0	0
g5	-	-	-	-	+	-	CCGG GGCC	CCGG GGCC	CCGG GGCC	3	1	3	5	4	3	1	0
g6	+	-	+	-	+	+	CCGG GGCC	CCGG GGCC	CCGG GGCC	0	1	1	1	0	0	0	0
g7	-	+	-	+	+	+	CCGG GGCC	CCGG GGCC	CCGG GGCC	18	6	14	1	2	0	0	0
g8	-	-	-	-	-	+	CCGG GGCC	CCGG GGCC	CCGG GGCC	2	2	3	1	0	0	0	0
h1	+	-	+	-	+	-	CCGG GGCC	CCGG GGCC	CCGG GGCC	21	9	19	10	76	74	78	74
h2	-	+	-	+	-	+	CCGG GGCC	CCGG GGCC	CCGG GGCC	82	22	49	11	163	163	160	164
h3	-	-	-	-	-	-	CCGG GGCC	CCGG GGCC	CCGG GGCC	12	8	15	7	34	5	8	7
h4	+	+	+	+	+	+	CCGG	CCGG	CCGG	933	981	839	890	886	898	876	897

							GGCC	GGCC	GGCC								
i1	-	+	-	+	+	-	CCGG	CCGG	CCGG	1	0	0	0	0	0	0	0
							GGCC	GGCC	GGCC								
i2	-	+	-	-	+	-	CCGG	GGCC	CCGG	0	0	1	0	0	0	0	0
							GGCC	CCGG	GGCC								
i3	+	-	-	-	-	+	CCGG	GGCC	CCGG	0	0	1	0	0	0	0	0
							GGCC	CCGG	GGCC								
i4	+	-	-	+	-	-	CCGG	CCGG	CCGG	0	2	0	0	0	0	0	0
							GGCC	GGCC	GGCC								
i5	+	-	-	+	+	-	CCGG	CCGG	CCGG	0	1	0	0	0	0	0	0
							GGCC	GGCC	GGCC								
i6	-	-	+	-	-	+	CCGG	CCGG	CCGG	1	0	0	1	0	0	1	0
							GGCC	GGCC	GGCC								
i7	-	-	-	+	+	+	CCGG	CCGG	CCGG	0	1	0	1	0	0	0	0
							GGCC	GGCC	GGCC								
i8	+	+	-	+	-	-	CCGG	CCGG	CCGG	0	1	1	0	0	0	0	0
							GGCC	GGCC	GGCC								
i9	+	+	+	-	-	-	CCGG	CCGG	CCGG	0	0	0	0	0	0	1	0
							GGCC	GGCC	GGCC								
Total amplified bands										1211	1211	1080	1080	1177	1156	1177	1156
Total polymorphic bands induced by drought and recovery										163	191	158	162	18	16	55	14
Polymorphism (%)										13.46	15.77	14.63	15.00	1.53	1.38	4.67	1.21

Demethylated bands induced by drought (a+b+c)	102	113	101	109	6	8	31	9
(a+b+c/Total)%	62.58	59.16	63.92	67.28	33.33	50.00	56.36	64.29
Methylated bands induced by drought (d+e+f)	22	45	23	25	5	5	21	4
(d+e+f/Total) %	13.50	23.56	14.56	15.43	27.78	31.25	38.18	28.57
Bands methylated only under recovery (g1,g2,g3)	7	5	3	3	1	0	0	1
Bands demethylated only under recovery (g4,g5,g6,g7g8)	30	23	28	23	6	3	1	0
g class bands	37	28	31	26	7	3	1	1
(g/Total) %	22.70	14.66	19.62	16.05	38.89	18.75	1.81	7.14

Note: “+” and “-“ indicate present and absent band respectively; H and M indicated *EcoR* I/*Hpa* II and *EcoR* I/Msp I lane respectively; C indicates methylated cytosine.

a: demethylated by drought stress, but recovered by subsequent rewatering

b: demethylated by drought stress, and still hypomethylated under recovery

c: demethylated by drought stress, but remethylated with different pattern under recovery

d: methylated by drought stress, but demethylated by subsequent rewatering

e: methylated by drought stress, and still methylated under recovery

f: methylated by drought stress, but demethylated with different pattern under recovery

g: DNA methylation pattern was not changed under drought, but induced by recovery

h: DNA methylation pattern was not changed under three conditions

i : Others