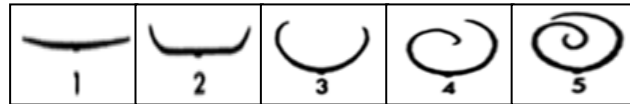


SUPPLEMENTARY MATERIALS

Figure S1:

(a) Scale for leaf wilting scoring (LWS).

0: leaves healthy, 1: flat, leaves start to fold, 2: V-shaped, 3: U-shaped, 4: O-shaped and 5: leaves tightly fold (O'Toole and Cruz, 1979; Fen et al. 2015).



(b) Scale for drought tolerance symptom (DS).

0-6 scales for drought scoring (DS) before re-water and 7-10 scales for DS at recovery. Modified scale according to Fen et al. (2015) and De Datta et al. (1988).

Score	Scoring	
0	No symptoms	Tolerant
1	Slight tip drying	
2	Tip drying extended to 1/4 length in most leaves	
3	1/4 to 1/2 of the leaves fully dried	
4	More than 2/3 of full leaves fully dried	
5	Drooping stem but leaves still pigmented	
6	All plants apparently dead	Susceptible
7	< 5 leaves senescence	Tolerant
8	< 10 leaves senescence	
9	> 10 leaves senescence	
10	Not recover	Susceptible

Table S1: (a) Mean of each accession for yield and biomass partitioning under water-sufficient (WS) and water-deficient (WD) in Trial I (n=3) and Trial II (n=4), SD= \pm standard error of the mean, % CV = % coefficient of variation

Entry	Genotype	Yield				Leaf fresh weight (g)				Leaf dry weight (g)				Stem fresh weight (g)				Stem dry weight (g)				Total leaf area (TLA, cm ²)				Specific leaf area (SLA, cm ² g ⁻¹)			
		Trial I		Trial II		Trial I		Trial II		Trial I		Trial II		Trial I		Trial II		Trial I		Trial II		Trial I		Trial II		Trial I		Trial II	
		WS	WD	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD	WS	WD
1	AV-TRI 2	11.14	3.09	26.76	17.88	5.90	1.43	12.27	8.57	0.54	0.70	0.77	0.90	5.24	1.66	14.48	9.31	0.55	0.51	1.23	1.05	200.30	82.50	330.50	270.50	371.30	116.60	457.00	299.60
2	AV-TRI 18	18.44	5.13	68.80	38.85	9.32	1.89	26.66	11.25	1.41	1.04	2.91	1.89	9.12	3.24	42.14	27.60	1.18	0.88	3.36	2.92	294.70	104.30	541.70	236.50	226.70	104.60	187.20	121.20
3	AV-TRI 26	18.57	3.05	52.07	33.60	10.22	1.55	24.85	16.30	1.40	1.01	3.35	3.41	8.35	1.50	27.23	17.30	1.07	0.53	2.79	2.58	372.20	134.00	795.60	634.80	267.70	132.20	238.40	183.20
4	AV-TRI 33	14.44	4.15	37.07	30.46	7.32	1.89	18.51	12.11	1.19	1.17	2.25	1.97	7.11	2.26	18.56	18.35	1.06	0.76	3.12	1.90	167.00	109.90	482.50	221.50	145.90	93.40	216.40	120.10
5	AV-TRI 34	12.04	5.43	47.01	29.87	6.92	2.76	22.40	13.52	1.01	1.17	2.05	2.03	5.12	2.67	24.61	16.35	0.61	0.77	2.54	1.58	196.60	180.20	541.40	430.90	209.70	151.10	265.10	234.20
6	AV-TRI 39	15.59	3.89	42.56	34.37	9.13	1.96	21.52	12.81	1.05	1.11	2.21	1.91	6.46	1.93	21.04	21.55	0.67	0.47	2.01	2.36	307.50	134.40	671.20	325.10	295.90	119.70	305.40	187.50
7	AV-TRI 40	16.68	3.94	41.78	30.32	9.81	1.48	19.31	10.01	1.18	0.95	1.83	1.37	6.87	2.46	22.47	20.31	0.87	0.81	1.67	2.08	301.90	104.50	612.40	206.60	264.00	111.20	336.40	170.70
8	AV-TRI 44	21.74	5.60	58.23	37.96	13.21	2.67	25.21	13.45	1.26	1.61	3.00	1.79	8.53	2.93	33.02	24.51	1.26	0.83	3.33	2.85	360.50	199.90	582.30	318.00	315.50	124.80	198.20	186.20
9	AV-TRI 49	18.33	5.79	49.57	37.32	8.70	2.35	22.20	15.84	1.25	1.51	3.34	3.08	9.63	3.45	27.37	21.48	1.35	0.97	2.70	3.21	283.10	189.50	688.40	580.10	228.50	124.30	206.30	186.40
10	AV-TRI 51	18.41	4.15	44.24	33.86	10.78	1.81	19.25	11.67	1.10	1.24	2.15	1.90	7.63	2.35	24.99	22.20	0.99	0.75	2.38	2.75	286.70	143.30	403.90	359.80	255.80	110.30	189.40	202.70
11	AV-TRI 53	18.95	4.21	38.93	24.53	8.79	1.49	16.04	6.99	1.26	0.99	1.93	1.06	10.16	2.71	22.89	17.55	1.29	0.91	2.51	1.90	270.90	102.70	250.70	237.40	218.50	104.00	136.90	236.30
12	AV-TRI 54	19.76	5.34	44.77	31.95	9.18	2.07	13.67	10.51	1.31	1.31	1.74	1.37	10.58	3.26	31.10	21.44	1.29	0.97	2.81	3.00	272.00	138.10	327.10	290.10	207.80	103.20	193.30	209.40
13	AV-TRI 56	12.09	4.16	45.12	28.74	6.21	1.73	19.02	11.73	0.82	1.13	2.28	1.45	5.88	2.43	26.11	17.01	0.87	0.85	3.02	2.04	180.40	128.70	589.60	384.90	222.20	108.60	261.60	290.90
14	AV-TRI 57	15.90	4.10	64.25	29.60	9.44	2.26	30.17	11.01	1.25	1.62	3.20	2.01	6.46	1.84	34.08	18.59	0.83	0.58	3.06	2.36	258.40	176.50	845.50	370.00	202.20	111.40	268.90	193.20
15	AV-TRI 58	15.60	3.81	47.83	35.62	9.45	2.04	26.52	19.11	1.26	1.23	2.70	2.50	6.15	1.77	21.31	16.51	0.71	0.58	1.90	1.54	274.60	147.10	738.70	600.00	225.50	119.90	275.70	242.90
16	AV-TRI 68	11.74	4.98	46.97	36.95	6.72	2.21	25.00	22.99	1.24	1.30	2.51	2.33	5.02	2.77	21.96	13.96	0.84	1.00	1.94	1.10	261.00	119.40	743.30	447.40	214.30	96.40	329.50	192.60
17	AV-TRI 69	15.11	3.86	47.43	22.05	11.32	2.10	33.53	14.09	1.21	1.06	2.45	1.88	3.79	1.76	13.90	7.96	0.47	0.59	1.47	1.05	334.60	139.60	1027.80	377.10	277.90	146.00	447.90	210.30
18	AV-TRI 3	15.58	5.79	64.84	47.90	8.34	2.55	28.68	20.20	1.23	1.08	2.78	2.19	7.23	3.24	36.16	27.70	1.06	0.76	2.47	2.37	259.80	183.90	771.40	591.90	211.20	170.40	282.10	289.30
19	AV-TRI 11	26.47	5.24	61.29	42.96	9.14	1.38	17.59	12.68	1.10	0.78	1.63	1.10	17.33	3.86	43.70	30.28	1.84	0.97	3.04	2.67	269.60	79.60	344.90	195.00	246.70	102.20	218.50	180.40
20	AV-TRI 24	12.64	5.51	54.51	41.72	5.53	1.99	26.11	15.56	1.00	1.36	2.77	2.10	7.11	3.52	28.41	26.16	1.14	1.46	2.62	2.80	200.10	112.50	756.90	476.00	198.60	80.10	296.60	223.70
21	AV-TRI 31	14.68	2.98	46.12	38.40	9.41	1.34	25.10	21.12	1.16	0.90	2.08	2.54	5.27	1.65	21.02	17.29	0.78	0.58	1.96	2.05	353.20	127.70	980.00	652.20	307.50	142.60	517.30	252.50
24	US-TRI 3	16.34	4.28	33.58	25.65	6.36	1.03	14.50	11.41	0.91	0.69	1.33	0.98	9.98	3.25	19.08	14.24	1.25	1.16	1.77	1.47	220.10	69.50	437.20	342.30	274.10	109.40	402.40	392.00
25	US-TRI 6	8.12	1.72	19.91	20.17	1.67	0.20	3.96	3.23	0.20	0.13	0.28	0.41	6.45	1.52	15.95	16.93	0.56	0.46	0.84	0.62	33.00	12.20	120.00	85.00	177.80	91.90	706.50	278.80
26	US-TRI 13	16.32	4.22	44.86	26.86	10.37	2.58	24.73	13.29	1.24	1.09	2.55	2.31	5.95	1.64	20.13	13.56	0.57	0.40	1.56	1.38	317.20	155.50	440.20	400.00	265.60	140.90	175.90	211.20
27	US-TRI 14	11.95	4.02	36.94	34.87	5.58	1.42	15.06	14.63	0.84	1.02	1.71	1.54	6.37	2.61	21.88	20.24	0.80	0.87	2.11	2.28	224.10	111.50	564.50	502.70	260.90	108.80	333.00	974.40
28	US-TRI 15	18.96	4.04	38.77	32.58	8.10	0.94	17.34	11.33	1.27	0.60	2.03	1.97	10.86	3.09	21.43	21.25	1.45	1.17	2.52	2.70	286.70	53.40	702.50	414.00	229.40	87.30	355.10	217.70
29	US-TRI 16	16.54	3.53	53.22	35.26	9.27	1.70	30.08	15.91	1.28	0.95	3.28	2.09	7.27	1.83	23.13	19.36	0.90	0.56	2.28	2.13	355.90	122.10	921.80	667.30	285.80	136.80	283.90	323.40
30	US-TRI 19	14.38	3.62	39.33	32.17	8.24	1.59	22.25	15.71	1.23	1.00	2.50	2.13	6.14	2.04	17.08	16.45	0.89	0.87	2.15	1.98	303.20	134.90	615.00	300.80	249.30	136.20	255.70	161.00
31	US-TRI 21	21.14	5.16	54.95	51.94	9.64	2.14	28.31	25.54	1.57	1.31	3.22	3.56	11.50	3.02	26.64	26.40	1.11	0.88	2.56	2.85	285.30	163.20	1003.70	742.90	181.80	127.10	355.60	208.70
32	US-TRI 24	11.81	3.82	61.43	33.41	5.89	1.58	31.83	17.42	0.86	0.93	3.57	2.52	5.92	2.24	29.60	15.99	0.83	0.78	2.96	2.12	209.60	113.30	1227.40	648.50	250.90	117.80	337.70	277.10
33	US-TRI 25	11.44	3.78	38.48	23.04	4.79	1.56	15.65	9.09	0.83	1.15	1.91	1.92	6.66	2.22	22.83	13.95	0.97	0.79	2.32	2.25	163.50	96.50	490.50	302.50	193.80	83.00	261.00	181.70
34	US-TRI 29	17.24	3.33	51.84	25.62	8.44	1.03	24.64	11.33	1.27	0.68	1.93	1.26	8.81	2.30	27.21	14.30	0.90	0.85	1.53	1.70	281.20	58.60	709.20	297.90	224.00	84.40	362.30	255.70
35	US-TRI 39	18.70	4.54	72.01	49.15	8.37	1.59	26.90	19.61	1.20	0.96	3.38	2.41	10.33	2.95	45.11	29.54	1.41	0.88	4.42	3.36	219.60	136.40	795.90	578.10	184.30	140.00	243.20	247

(b) Mean of each accession for relative water content under water-sufficient (WS) and water-deficient (WD) in Trial I (n=3) and Trial II (n=4), SD= \pm standard error of the mean, % CV = % coefficient of variation.

Relative water content											
Entry	Genotype	Trial I				Trial II					
		WS		WD		WS			WD		
		100% WHC	20% WHC	100% WHC	20% WHC	100% WHC	50% WHC	20% WHC	100% WHC	50% WHC	20% WHC
1	AV-TRI 2	90.22	92.68	85.48	73.32	90.16	86.76	87.37	90.71	86.35	72.31
2	AV-TRI 18	83.38	92.15	89.07	70.07	88.31	81.84	79.57	88.28	73.58	69.10
3	AV-TRI 26	91.33	91.36	83.49	47.65	87.55	90.85	87.11	88.96	83.26	72.21
4	AV-TRI 33	88.78	92.36	83.98	68.19	90.19	76.13	83.93	91.32	75.52	70.94
5	AV-TRI 34	93.00	94.12	92.01	74.17	91.95	85.78	84.06	91.80	80.58	74.63
6	AV-TRI 39	91.66	87.13	86.96	53.41	89.96	88.88	86.19	92.96	83.92	74.23
7	AV-TRI 40	87.30	92.33	79.36	62.18	90.30	78.80	86.04	89.46	82.79	73.31
8	AV-TRI 44	95.57	95.12	85.34	59.65	92.09	86.07	88.74	90.31	75.30	71.24
9	AV-TRI 49	92.39	86.80	91.17	48.66	88.95	99.70	90.69	88.38	91.69	76.76
10	AV-TRI 51	82.90	86.75	80.68	52.97	91.01	85.97	86.10	86.82	78.08	70.30
11	AV-TRI 53	94.11	97.08	90.59	49.79	89.91	89.72	94.17	91.33	81.82	80.07
12	AV-TRI 54	90.14	87.48	89.67	60.46	90.50	85.74	88.98	89.05	83.87	76.31
13	AV-TRI 56	93.46	81.48	86.87	53.92	89.42	84.98	86.89	90.61	79.95	74.36
14	AV-TRI 57	94.92	90.27	95.36	59.87	90.95	80.89	83.53	91.05	80.39	72.36
15	AV-TRI 58	88.87	92.88	90.08	62.72	88.61	80.36	83.45	88.27	73.54	72.92
16	AV-TRI 68	86.96	96.96	86.93	73.23	85.96	94.25	83.78	88.42	86.21	81.67
17	AV-TRI 69	92.49	89.77	85.52	72.56	88.99	79.72	85.12	91.66	80.98	68.06
18	AV-TRI 3	93.97	94.04	89.27	56.82	99.00	93.74	88.56	101.92	89.83	81.15
19	AV-TRI 11	88.47	86.51	77.92	45.32	90.00	81.38	89.23	88.96	76.19	71.80
20	AV-TRI 24	85.80	92.58	81.89	43.29	89.77	84.56	90.13	89.44	79.12	77.00
21	AV-TRI 31	88.86	90.09	90.49	73.38	91.75	87.55	88.98	90.17	85.38	74.35
24	US-TRI 3	88.94	91.91	91.65	65.46	91.50	87.80	86.20	90.50	84.57	76.46
25	US-TRI 6	94.23	91.95	96.47	74.83	86.80	84.85	90.10	87.89	87.43	79.61
26	US-TRI 13	90.71	87.72	83.86	78.22	91.63	88.06	78.89	90.13	81.42	71.35
27	US-TRI 14	91.38	93.52	85.85	60.27	88.98	86.99	83.30	90.12	83.60	79.02
28	US-TRI 15	90.64	96.29	84.75	50.97	90.59	84.13	87.82	90.84	77.59	68.65
29	US-TRI 16	89.45	88.18	85.59	65.86	87.34	96.45	86.58	90.17	92.63	84.54
30	US-TRI 19	89.84	86.50	89.01	86.17	89.95	85.44	90.50	91.33	81.41	77.81
31	US-TRI 21	87.95	90.15	87.12	52.21	89.36	92.76	87.64	90.24	94.00	85.06
32	US-TRI 24	86.13	88.67	85.77	65.33	91.83	85.58	87.62	91.60	81.15	76.82
33	US-TRI 25	93.57	92.64	85.43	59.13	91.05	89.13	85.56	91.73	73.90	68.54
34	US-TRI 29	91.32	92.68	75.91	49.59	91.78	87.31	87.82	92.15	79.53	71.74
35	US-TRI 39	90.17	82.22	89.05	78.03	89.52	91.30	86.81	90.32	88.26	83.98
36	US-TRI 46	85.54	90.90	88.26	80.36	92.40	86.77	87.24	93.45	86.30	80.56
37	US-TRI 47	90.48	89.93	92.38	80.98	91.07	87.04	77.19	91.53	82.06	73.41
38	US-TRI 20	86.25	88.38	86.68	61.13	89.32	88.80	88.58	88.80	79.02	74.74
39	US-TRI 30	84.89	88.07	84.89	43.84	88.66	88.61	83.33	89.26	91.01	74.30
40	US-TRI 48	90.95	91.73	85.98	53.28	90.73	85.95	88.42	91.38	79.24	73.04
41	US-TRI 49	86.24	95.77	86.64	51.33	91.38	89.62	88.19	94.71	87.64	80.15
42	US-TRI 51	92.65	86.12	85.27	64.03	90.49	91.31	91.99	90.79	92.58	89.31
43	Local Red	87.90	91.42	89.03	46.53	90.44	91.34	89.63	89.81	85.59	81.25
44	Local PR	95.36	91.80	91.05	50.01	91.08	82.14	87.02	91.95	78.85	79.16
45	EW-Thida	86.87	96.61	89.89	60.02	91.70	88.28	86.54	88.18	86.69	82.93
46	EW-Zeya	93.45	93.75	91.00	49.98	90.74	88.56	86.64	91.65	85.50	75.62
Mean		89.99	90.84	87.13	61.12	90.31	87.09	86.73	90.65	82.92	75.98
SD		3.25	3.63	4.17	11.39	2.08	4.63	3.27	2.35	5.32	4.99
CV (%)		3.61	4.00	4.79	18.64	2.30	5.32	3.77	2.59	6.42	6.57

(c) Mean of each accession for chlorophyll fluorescence under water-sufficient (WS) and water-deficient (WD) in Trial I (n=3) and Trial II (n=4), SD= ±standard error of the mean, % CV = % coefficient of variation.

Entry	Genotype	Fv'/Fm'										Fv/Fm					
		Trial I				Trial II						Trial II					
		WS		WD		WS			WD			WS			WD		
		100% WHC	20% WHC	100% WHC	20% WHC	100% WHC	50% WHC	20% WHC	100% WHC	50% WHC	20% WHC	100% WHC	50% WHC	20% WHC	100% WHC	50% WHC	20% WHC
1	AV-TRI 2	0.63	0.58	0.61	0.57	0.56	0.53	0.57	0.56	0.53	0.58	0.7	0.72	0.67	0.72	0.71	0.66
2	AV-TRI 18	0.65	0.54	0.61	0.38	0.58	0.56	0.53	0.57	0.51	0.5	0.73	0.61	0.61	0.71	0.61	0.61
3	AV-TRI 26	0.67	0.54	0.64	0.51	0.51	0.5	0.54	0.53	0.47	0.58	0.68	0.66	0.64	0.72	0.64	0.58
4	AV-TRI 33	0.67	0.54	0.63	0.45	0.55	0.49	0.53	0.55	0.49	0.52	0.7	0.69	0.56	0.73	0.7	0.58
5	AV-TRI 34	0.62	0.55	0.62	0.45	0.5	0.5	0.49	0.52	0.52	0.49	0.72	0.62	0.63	0.72	0.64	0.62
6	AV-TRI 39	0.62	0.53	0.61	0.55	0.54	0.54	0.49	0.54	0.54	0.52	0.7	0.69	0.64	0.72	0.67	0.56
7	AV-TRI 40	0.65	0.6	0.65	0.46	0.52	0.5	0.47	0.53	0.54	0.49	0.75	0.68	0.63	0.74	0.67	0.6
8	AV-TRI 44	0.66	0.53	0.66	0.55	0.55	0.48	0.51	0.54	0.53	0.52	0.74	0.65	0.62	0.75	0.68	0.63
9	AV-TRI 49	0.65	0.56	0.67	0.64	0.56	0.51	0.56	0.55	0.52	0.59	0.69	0.63	0.61	0.69	0.64	0.62
10	AV-TRI 51	0.66	0.6	0.65	0.41	0.49	0.52	0.53	0.53	0.51	0.52	0.71	0.67	0.61	0.71	0.69	0.59
11	AV-TRI 53	0.66	0.56	0.58	0.47	0.54	0.53	0.54	0.52	0.54	0.52	0.73	0.7	0.62	0.74	0.69	0.62
12	AV-TRI 54	0.66	0.53	0.61	0.49	0.56	0.51	0.52	0.55	0.54	0.5	0.76	0.72	0.63	0.75	0.71	0.64
13	AV-TRI 56	0.69	0.6	0.6	0.58	0.56	0.5	0.49	0.56	0.5	0.49	0.72	0.68	0.66	0.74	0.69	0.63
14	AV-TRI 57	0.65	0.56	0.63	0.5	0.56	0.42	0.49	0.55	0.46	0.51	0.75	0.68	0.62	0.73	0.67	0.55
15	AV-TRI 58	0.68	0.56	0.66	0.49	0.57	0.51	0.52	0.55	0.52	0.49	0.72	0.69	0.64	0.74	0.7	0.64
16	AV-TRI 68	0.6	0.57	0.62	0.41	0.56	0.53	0.54	0.55	0.55	0.54	0.71	0.62	0.7	0.71	0.64	0.68
17	AV-TRI 69	0.7	0.61	0.66	0.58	0.54	0.61	0.56	0.58	0.62	0.56	0.69	0.67	0.7	0.72	0.71	0.67
18	AV-TRI 3	0.64	0.55	0.67	0.47	0.52	0.51	0.59	0.54	0.52	0.54	0.7	0.67	0.63	0.71	0.65	0.65
19	AV-TRI 11	0.66	0.59	0.66	0.56	0.52	0.54	0.55	0.54	0.55	0.54	0.69	0.73	0.65	0.72	0.73	0.66
20	AV-TRI 24	0.63	0.51	0.65	0.43	0.54	0.53	0.54	0.56	0.51	0.53	0.71	0.66	0.61	0.74	0.67	0.62
21	AV-TRI 31	0.66	0.59	0.65	0.56	0.56	0.54	0.55	0.57	0.55	0.56	0.71	0.69	0.68	0.73	0.69	0.68
24	US-TRI 3	0.67	0.58	0.63	0.44	0.53	0.5	0.51	0.53	0.52	0.54	0.74	0.69	0.65	0.74	0.69	0.63
25	US-TRI 6	0.61	0.57	0.6	0.51	0.48	0.48	0.54	0.48	0.5	0.52	0.71	0.7	0.66	0.72	0.71	0.63
26	US-TRI 13	0.65	0.55	0.67	0.51	0.59	0.53	0.63	0.59	0.51	0.61	0.72	0.69	0.64	0.73	0.69	0.62
27	US-TRI 14	0.63	0.53	0.72	0.58	0.49	0.55	0.49	0.51	0.5	0.47	0.72	0.67	0.6	0.72	0.67	0.59
28	US-TRI 15	0.62	0.56	0.63	0.43	0.54	0.53	0.54	0.55	0.52	0.52	0.74	0.73	0.66	0.73	0.72	0.6
29	US-TRI 16	0.65	0.56	0.63	0.48	0.49	0.48	0.55	0.53	0.5	0.5	0.7	0.64	0.65	0.72	0.64	0.66
30	US-TRI 19	0.65	0.55	0.61	0.47	0.48	0.52	0.55	0.52	0.53	0.5	0.69	0.63	0.59	0.68	0.65	0.57
31	US-TRI 21	0.62	0.5	0.64	0.45	0.46	0.54	0.59	0.46	0.52	0.56	0.7	0.61	0.68	0.71	0.62	0.68
32	US-TRI 24	0.64	0.59	0.63	0.46	0.59	0.55	0.56	0.56	0.56	0.54	0.75	0.68	0.62	0.72	0.66	0.63
33	US-TRI 25	0.63	0.56	0.63	0.57	0.55	0.51	0.47	0.53	0.51	0.49	0.74	0.64	0.57	0.71	0.63	0.56
34	US-TRI 29	0.61	0.51	0.59	0.32	0.55	0.44	0.51	0.53	0.47	0.48	0.69	0.66	0.55	0.72	0.66	0.57
35	US-TRI 39	0.64	0.54	0.67	0.56	0.51	0.55	0.6	0.51	0.56	0.59	0.74	0.67	0.7	0.71	0.65	0.65
36	US-TRI 46	0.66	0.59	0.65	0.5	0.51	0.53	0.59	0.51	0.54	0.6	0.74	0.62	0.63	0.73	0.65	0.62
37	US-TRI 47	0.67	0.61	0.64	0.51	0.57	0.54	0.56	0.56	0.55	0.55	0.7	0.73	0.72	0.72	0.73	0.69
38	US-TRI 20	0.66	0.56	0.64	0.44	0.62	0.57	0.47	0.6	0.53	0.49	0.76	0.76	0.6	0.74	0.73	0.58
39	US-TRI 30	0.61	0.57	0.63	0.4	0.5	0.52	0.59	0.53	0.51	0.55	0.75	0.66	0.61	0.73	0.65	0.61
40	US-TRI 48	0.66	0.59	0.62	0.46	0.58	0.56	0.58	0.59	0.56	0.51	0.77	0.67	0.65	0.76	0.67	0.65
41	US-TRI 49	0.64	0.53	0.64	0.4	0.58	0.48	0.52	0.57	0.52	0.47	0.73	0.69	0.65	0.72	0.67	0.63
42	US-TRI 51	0.66	0.57	0.63	0.43	0.44	0.53	0.59	0.51	0.53	0.58	0.72	0.61	0.67	0.73	0.64	0.68
43	Local Red	0.67	0.56	0.65	0.45	0.55	0.46	0.53	0.55	0.51	0.56	0.75	0.66	0.66	0.73	0.65	0.66
44	Local PR	0.63	0.56	0.66	0.51	0.57	0.54	0.6	0.56	0.54	0.59	0.7	0.68	0.66	0.72	0.68	0.68
45	EW-Thida	0.64	0.52	0.64	0.44	0.53	0.52	0.6	0.53	0.51	0.54	0.71	0.7	0.63	0.66	0.66	0.64
46	EW-Zeya	0.68	0.61	0.65	0.57	0.53	0.56	0.6	0.55	0.59	0.56	0.79	0.7	0.69	0.76	0.69	0.71
Mean		0.65	0.56	0.64	0.49	0.54	0.52	0.54	0.54	0.53	0.53	0.72	0.67	0.64	0.72	0.67	0.63
SD		0.02	0.03	0.03	0.07	0.04	0.03	0.04	0.03	0.03	0.04	0.03	0.04	0.04	0.02	0.03	0.04
CV (%)		3.08	5.36	4.69	14.29	7.41	5.77	7.41	5.56	5.66	7.55	4.17	5.97	6.25	2.78	4.48	6.35

(c) Mean of each accession for leaf gas exchange measurement under water-sufficient (WS) and water-deficient (WD) in Trial I (n=3) and Trial II (n=4), SD= \pm standard error of the mean, % CV = % coefficient of variation.

Entry	Genotype	Photosynthesis				Stomatal conductance				Intercellular [CO ₂]				Transpiration rate			
		WS		WD		WS		WD		WS		WD		WS		WD	
		100% WHC	50% WHC	100% WHC	50% WHC	100% WHC	50% WHC	100% WHC	50% WHC	100% WHC	50% WHC	100% WHC	50% WHC	100% WHC	50% WHC	100% WHC	50% WHC
1	AV-TRI 2	18.45	22.82	37.33	12.82	0.09	0.15	0.17	0.10	54.00	117.50	78.50	162.40	2.79	4.26	4.62	2.72
2	AV-TRI 18	21.73	25.16	37.81	14.50	0.19	0.15	0.20	0.07	180.70	111.40	53.80	35.60	4.23	4.21	4.51	2.43
3	AV-TRI 26	6.40	21.84	15.14	19.49	0.04	0.12	0.21	0.10	150.30	76.80	261.10	77.10	1.62	2.85	6.09	2.34
4	AV-TRI 33	20.61	13.97	39.51	17.91	0.11	0.11	0.23	0.11	74.50	151.10	78.70	104.10	3.51	2.93	5.43	3.53
5	AV-TRI 34	20.53	20.65	27.55	22.47	0.12	0.15	0.18	0.16	98.90	151.90	110.30	136.50	3.45	4.24	4.62	3.44
6	AV-TRI 39	18.43	12.28	33.75	12.82	0.12	0.13	0.16	0.15	133.40	202.80	49.60	223.50	3.61	3.54	4.01	3.36
7	AV-TRI 40	23.93	28.51	35.52	13.08	0.16	0.23	0.23	0.06	121.20	164.90	110.50	48.30	3.71	6.03	5.19	1.76
8	AV-TRI 44	13.83	10.27	20.45	13.37	0.15	0.10	0.20	0.08	220.20	181.20	187.70	136.90	3.44	2.97	4.53	2.20
9	AV-TRI 49	41.71	20.99	43.21	22.68	0.31	0.14	0.33	0.15	141.40	141.10	143.20	123.70	6.95	3.40	7.03	3.38
10	AV-TRI 51	28.24	35.66	35.60	14.90	0.18	0.30	0.29	0.12	114.80	168.10	123.00	138.60	5.11	7.32	5.69	3.11
11	AV-TRI 53	31.80	28.25	42.45	21.86	0.19	0.17	0.30	0.11	99.00	85.30	124.00	61.20	3.99	4.19	5.48	3.43
12	AV-TRI 54	44.56	15.71	29.67	14.16	0.29	0.08	0.22	0.07	108.10	67.60	139.90	40.60	5.77	2.36	5.46	1.70
13	AV-TRI 56	16.39	18.93	39.63	23.08	0.10	0.17	0.29	0.12	109.20	179.20	138.40	89.10	3.32	4.82	6.05	2.92
14	AV-TRI 57	18.18	16.29	34.25	18.22	0.14	0.12	0.24	0.10	139.70	138.00	133.90	95.50	4.07	3.66	5.56	2.99
15	AV-TRI 58	26.07	19.82	26.93	24.63	0.16	0.18	0.22	0.15	111.80	185.40	169.60	93.40	4.52	4.81	5.44	3.63
16	AV-TRI 68	8.79	28.02	35.72	26.51	0.05	0.16	0.23	0.14	81.30	87.20	106.10	40.80	1.72	4.24	5.24	3.06
17	AV-TRI 69	21.52	8.21	27.11	11.51	0.09	0.08	0.16	0.06	62.70	192.90	93.00	57.40	2.22	2.55	4.00	1.66
18	AV-TRI 3	12.37	19.03	37.53	21.38	0.14	0.21	0.28	0.20	231.50	216.70	137.70	99.70	3.63	5.91	6.06	4.45
19	AV-TRI 11	18.42	27.91	32.23	24.46	0.12	0.19	0.13	0.13	106.70	114.40	27.00	49.60	3.54	4.83	2.79	4.48
20	AV-TRI 24	23.30	17.98	44.62	19.35	0.15	0.10	0.27	0.10	110.20	69.10	89.00	57.70	4.10	3.02	5.52	2.48
21	AV-TRI 31	26.25	18.13	17.69	27.14	0.14	0.11	0.19	0.16	77.70	97.80	225.30	83.10	3.82	3.19	4.78	3.82
24	US-TRI 3	33.86	26.91	38.44	23.33	0.18	0.19	0.26	0.14	62.60	85.40	106.70	86.40	4.44	5.48	5.47	3.29
25	US-TRI 6	21.11	27.46	24.61	27.34	0.14	0.15	0.17	0.16	131.40	66.30	128.50	95.10	4.18	4.70	4.56	3.64
26	US-TRI 13	22.46	11.89	32.18	17.20	0.15	0.07	0.18	0.10	83.80	99.70	68.80	67.00	3.51	2.73	4.53	2.27
27	US-TRI 14	28.19	14.17	42.84	31.35	0.17	0.07	0.27	0.18	97.20	31.50	96.10	76.70	4.37	2.37	5.67	4.06
28	US-TRI 15	18.51	13.28	33.45	17.23	0.09	0.06	0.21	0.08	37.90	51.60	89.30	36.20	2.74	1.65	5.03	1.91
29	US-TRI 16	29.29	17.50	35.65	19.71	0.17	0.08	0.25	0.13	80.90	42.00	130.80	89.20	5.16	2.21	6.33	2.81
30	US-TRI 19	26.35	17.31	36.19	14.58	0.24	0.08	0.28	0.10	197.00	100.80	149.30	148.90	5.67	1.95	6.27	2.72
31	US-TRI 21	44.67	11.50	43.16	29.68	0.28	0.09	0.26	0.15	95.30	25.20	80.40	40.50	6.26	1.70	5.95	3.90
32	US-TRI 24	23.63	32.25	23.75	19.38	0.12	0.19	0.14	0.12	51.30	85.70	97.90	92.10	3.09	4.26	3.40	3.58
33	US-TRI 25	23.35	19.53	42.46	16.77	0.13	0.11	0.25	0.13	75.70	91.00	82.90	173.30	3.87	2.74	6.02	3.82
34	US-TRI 29	26.89	21.06	35.22	9.15	0.17	0.16	0.24	0.07	117.00	173.30	120.50	168.50	4.74	4.04	5.66	2.19
35	US-TRI 39	23.39	13.71	28.40	18.22	0.13	0.09	0.17	0.12	90.30	124.10	92.70	110.90	3.37	2.90	2.98	4.01
36	US-TRI 46	29.16	22.24	38.23	15.61	0.15	0.16	0.20	0.08	60.80	142.20	49.50	69.40	3.55	4.79	4.47	2.76
37	US-TRI 47	28.78	15.20	33.26	26.96	0.15	0.07	0.17	0.15	57.80	36.10	58.90	58.10	3.38	2.30	3.26	4.11
38	US-TRI 20	21.29	25.26	35.17	13.26	0.12	0.15	0.22	0.08	81.00	73.80	99.60	86.60	3.47	3.57	4.82	2.59
39	US-TRI 30	32.93	15.67	38.34	15.92	0.21	0.10	0.29	0.12	102.20	120.60	146.50	129.90	5.48	2.42	5.93	3.72
40	US-TRI 48	33.04	12.24	39.39	19.61	0.21	0.06	0.26	0.13	106.00	80.90	117.60	113.40	5.79	1.80	5.87	3.99
41	US-TRI 49	28.90	13.94	28.73	16.83	0.17	0.07	0.18	0.10	97.00	38.80	103.80	114.40	4.43	1.78	5.05	3.43
42	US-TRI 51	23.40	12.30	23.40	18.60	0.17	0.06	0.17	0.12	124.80	57.80	124.80	89.90	4.78	1.43	4.78	2.97
43	Local Red	21.67	15.81	22.24	20.58	0.16	0.08	0.17	0.14	154.10	65.00	155.10	131.30	4.61	1.65	4.72	3.37
44	Local PR	28.23	23.16	30.68	18.03	0.18	0.15	0.18	0.12	115.10	76.30	81.90	98.30	4.60	4.04	4.38	4.04
45	EW-Thida	21.79	18.34	23.25	16.17	0.12	0.10	0.14	0.12	77.90	80.50	95.80	126.00	2.81	2.88	3.45	3.97
46	EW-Zeya	30.32	17.90	31.06	17.41	0.20	0.13	0.16	0.09	126.20	126.00	55.70	57.60	3.74	4.32	2.89	3.31
Mean		24.61	19.30	33.04	19.07	0.16	0.13	0.22	0.12	107.97	108.52	111.67	95.78	4.03	3.48	4.99	3.17
SD		7.99	6.27	7.27	5.11	0.06	0.05	0.05	0.03	42.27	50.56	45.07	41.91	1.11	1.34	1.00	0.75
CV (%)		32.47	32.49	22.00	26.80	37.50	38.46	22.73	25.00	39.15	46.59	40.36	43.76	27.54	38.51	20.04	23.66

(continued)

Entry	Genotype	Instantaneous water use efficiency (WUE, $\mu\text{mol mol}^{-1}$)				Intrinsic water use efficiency (WUEi, $\mu\text{mol mmol}^{-1}$)				Stomatal limitation (Ls)			
		WS		WD		WS		WD		WS		WD	
		100% WHC	50% WHC	100% WHC	50% WHC	100% WHC	50% WHC	100% WHC	50% WHC	100% WHC	50% WHC	100% WHC	50% WHC
1	AV-TRI 2	6.91	5.77	8.70	4.87	217.60	157.60	231.80	133.00	0.86	0.69	0.79	0.58
2	AV-TRI 18	5.17	6.06	8.87	6.36	118.50	160.00	191.50	217.20	0.54	0.71	0.86	0.91
3	AV-TRI 26	4.24	7.66	2.48	8.33	156.30	185.60	71.70	190.50	0.63	0.80	0.36	0.80
4	AV-TRI 33	6.03	4.68	7.45	4.48	185.40	139.10	174.40	165.70	0.81	0.61	0.79	0.73
5	AV-TRI 34	5.78	5.04	6.04	6.37	169.80	136.40	160.20	146.60	0.74	0.61	0.71	0.64
6	AV-TRI 39	4.99	3.46	9.31	6.21	148.80	106.40	226.00	148.40	0.66	0.48	0.87	0.43
7	AV-TRI 40	6.03	4.75	6.83	7.68	154.30	124.40	156.40	206.80	0.68	0.57	0.71	0.88
8	AV-TRI 44	4.02	3.63	5.66	4.91	95.20	124.20	115.40	152.00	0.44	0.54	0.51	0.65
9	AV-TRI 49	6.01	6.30	6.15	6.76	132.50	148.10	132.00	154.80	0.61	0.64	0.61	0.68
10	AV-TRI 51	5.55	4.97	7.36	4.76	156.00	119.20	148.70	147.20	0.70	0.55	0.67	0.64
11	AV-TRI 53	8.11	6.67	8.88	6.67	173.10	175.20	145.10	193.30	0.76	0.77	0.67	0.84
12	AV-TRI 54	7.72	7.04	5.46	8.50	153.80	192.50	139.80	211.90	0.71	0.83	0.63	0.90
13	AV-TRI 56	4.93	4.27	6.75	7.90	164.70	119.80	136.90	199.70	0.72	0.54	0.63	0.77
14	AV-TRI 57	4.67	4.79	6.25	6.53	144.70	147.00	142.00	173.20	0.64	0.64	0.64	0.75
15	AV-TRI 58	5.82	4.38	4.79	7.02	159.20	115.80	122.90	172.60	0.71	0.52	0.56	0.76
16	AV-TRI 68	5.08	6.59	7.00	8.05	185.50	173.90	159.00	204.70	0.79	0.77	0.72	0.89
17	AV-TRI 69	9.90	3.46	7.37	7.00	247.20	114.80	171.80	197.40	0.84	0.51	0.76	0.88
18	AV-TRI 3	3.43	3.60	6.29	5.35	93.20	96.30	138.20	123.00	0.39	0.44	0.63	0.74
19	AV-TRI 11	5.60	5.77	11.85	5.51	166.10	156.70	249.00	198.20	0.72	0.70	0.93	0.87
20	AV-TRI 24	5.67	6.92	8.17	7.88	161.70	190.40	165.70	198.00	0.71	0.82	0.76	0.85
21	AV-TRI 31	7.07	5.66	3.46	7.54	180.80	171.40	92.30	178.00	0.80	0.75	0.43	0.78
24	US-TRI 3	7.63	5.07	7.52	7.58	186.60	182.10	157.60	176.50	0.84	0.77	0.71	0.78
25	US-TRI 6	5.17	5.94	5.53	7.66	148.90	186.90	149.50	170.60	0.66	0.83	0.67	0.75
26	US-TRI 13	6.41	4.51	7.38	8.16	163.90	173.20	190.50	193.50	0.74	0.75	0.82	0.83
27	US-TRI 14	6.41	5.80	7.91	8.24	167.60	215.80	162.50	180.40	0.74	0.92	0.74	0.80
28	US-TRI 15	6.76	8.03	7.28	8.73	215.30	226.10	170.60	214.60	0.90	0.87	0.76	0.91
29	US-TRI 16	5.68	8.69	5.65	7.45	175.70	231.20	142.00	196.70	0.79	0.90	0.67	0.77
30	US-TRI 19	4.33	9.26	5.98	5.10	105.40	253.10	131.40	141.00	0.49	0.74	0.60	0.62
31	US-TRI 21	7.24	7.29	7.51	7.28	161.60	196.70	171.90	210.80	0.74	0.94	0.78	0.86
32	US-TRI 24	7.69	7.40	7.02	5.81	199.30	174.10	170.30	174.80	0.87	0.78	0.74	0.76
33	US-TRI 25	6.36	6.90	7.26	3.83	183.40	176.20	170.10	123.60	0.80	0.77	0.78	0.56
34	US-TRI 29	5.71	5.15	6.51	3.67	155.70	129.10	149.90	128.60	0.69	0.55	0.68	0.57
35	US-TRI 39	6.94	4.78	9.52	4.84	175.50	181.30	173.20	187.80	0.77	0.68	0.76	0.71
36	US-TRI 46	7.96	4.66	8.86	5.70	189.90	141.90	192.60	190.40	0.84	0.64	0.87	0.82
37	US-TRI 47	8.47	6.51	10.28	6.64	199.40	212.60	201.50	192.70	0.85	0.91	0.85	0.85
38	US-TRI 20	6.11	7.75	7.76	5.71	180.70	184.50	163.80	181.00	0.79	0.81	0.73	0.78
39	US-TRI 30	6.12	6.93	6.54	5.97	162.00	178.70	132.50	187.80	0.73	0.69	0.61	0.66
40	US-TRI 48	5.86	8.85	6.87	5.00	159.20	230.30	150.00	160.70	0.72	0.79	0.68	0.71
41	US-TRI 49	6.58	8.38	5.69	5.18	167.70	212.80	162.70	161.30	0.74	0.90	0.73	0.71
42	US-TRI 51	4.71	8.58	4.71	7.56	151.00	200.80	151.00	183.90	0.67	0.85	0.67	0.77
43	Local Red	4.47	10.07	4.47	6.28	131.20	219.20	132.70	151.30	0.60	0.84	0.60	0.66
44	Local PR	6.10	7.05	7.20	4.73	156.50	183.80	176.50	172.70	0.70	0.80	0.78	0.75
45	EW-Thida	8.01	6.20	6.70	4.35	182.80	184.40	171.90	153.60	0.80	0.79	0.75	0.67
46	EW-Zeya	8.16	4.37	10.88	5.34	160.30	161.50	194.90	217.30	0.68	0.68	0.85	0.85
Mean		6.17	6.13	7.05	6.35	164.64	170.25	160.01	176.45	0.72	0.72	0.71	0.75
SD		1.35	1.67	1.82	1.38	29.55	37.53	32.88	26.13	0.11	0.13	0.11	0.11
CV (%)		21.88	27.24	25.82	21.73	17.95	22.04	20.55	14.81	15.28	18.06	15.49	14.67

Table S2: Mean of each accession for rewatering assessment, n=3, SD = \pm standard error of the mean.

Entry	Genotype	Drought stress				Recovery		
		DFT	DTW	LWS	DS	DTR	DS-1R	DS-5R
1	AV-TRI 2	1	6	3	3	5	2	0
2	AV-TRI 18	3	2	3	1	2	5	9
3	AV-TRI 26	3	3	3	1	not recovered	not recovered	not recovered
4	AV-TRI 33	3	1	1	1	1	6	6
5	AV-TRI 34	3	2	2	1	1	2	8
6	AV-TRI 39	4	3	3	2	3	4	7
7	AV-TRI 40	3	3	3	1	1	3	6
8	AV-TRI 44	4	3	3	1	2	6	5
9	AV-TRI 49	4	4	3	2	1	5	5
10	AV-TRI 51	3	2	3	1	1	5	9
11	AV-TRI 53	2	4	1	2	3	5	5
12	AV-TRI 54	2	3	4	2	not recovered	not recovered	not recovered
13	AV-TRI 56	3	4	4	1	1	5	7
14	AV-TRI 57	4	3	3	2	1	5	not recovered
15	AV-TRI 58	3	3	2	0	3	5	not recovered
16	AV-TRI 68	3	4	2	1	1	0	0
17	AV-TRI 69	3	3	3	1	2	6	8
18	AV-TRI 3	3	5	0	2	3	5	0
19	AV-TRI 11	4	2	4	1	1	2	3
20	AV-TRI 24	1	3	4	4	1	3	6
21	AV-TRI 31	4	4	2	3	2	3	3
24	US-TRI 3	3	4	4	2	1	0	0
25	US-TRI 6	0	4	2	3	1	0	0
26	US-TRI 13	4	2	3	2	1	3	5
27	US-TRI 14	1	3	3	1	1	0	1
28	US-TRI 15	1	3	2	3	2	5	5
29	US-TRI 16	3	3	2	1	1	2	8
30	US-TRI 19	2	4	3	2	2	1	3
31	US-TRI 21	4	3	2	1	1	4	6
32	US-TRI 24	3	5	2	2	1	3	not recovered
33	US-TRI 25	3	4	1	0	2	8	8
34	US-TRI 29	1	3	3	2	1	1	3
35	US-TRI 39	3	3	4	2	1	4	2
36	US-TRI 46	3	3	2	2	2	4	9
37	US-TRI 47	2	5	2	1	not recovered	not recovered	not recovered
38	US-TRI 20	2	4	3	1	2	0	0
39	US-TRI 30	3	3	3	2	1	4	0
40	US-TRI 48	3	2	3	1	2	5	7
41	US-TRI 49	3	3	2	1	2	0	0
42	US-TRI 51	3	4	1	1	3	3	3
43	Local Red	4	4	4	3	1	0	0
44	Local PR	4	5	2	2	1	2	2
45	EW-Thida	3	2	2	1	1	3	3
46	EW-Zeya	4	4	4	2	1	3	4
Mean		3	3	3	2	2	3	4
SD		1.01	1.01	0.97	0.84	0.89	2.07	3.09

Table S3a. Correlation coefficients (R) for traits associated with water-sufficient (WS) in the bottom diagonal and water-deficient (WD) in the top diagonal for the 44 A. tricolor accessions in Trial 1 (n=3): Leaf dry weight (LDW), 2: Leaf fresh weight (LFW), 3: (Fv'/Fm') at 20% WHC, 4: Fv'/Fm' at 100% WHC, 5: Relative water content (RWC) at 20% WHC, 6: RWC at 100% WHC, 7: Stem dry weight (SDW), 8: Stem fresh weight, (SFW), 9: Specific leaf area (SLA), 10: Total leaf area (TLA). Probability significantly different at P<0.05, P<0.01 or P<0.001.

Pearson correlation Trial I												
Traits		LDW	LFW	<i>Fv'/Fm'</i> 20	<i>Fv'/Fm'</i> 100	RWC 20	RWC 100	SDW	SFW	SLA	TLA	Yield
1	LDW	-	<u>0.73</u>	-0.05	-0.05	<u>-0.43</u>	-0.13	<u>0.30</u>	<u>0.34</u>	-0.02	<u>0.82</u>	<u>0.60</u>
2	LFW	<u>0.78</u>	-	0.03	0.05	-0.11	-0.10	0.14	<u>0.38</u>	<u>0.29</u>	<u>0.77</u>	<u>0.77</u>
3	<i>Fv'/Fm'</i> 20	<u>-0.26</u>	<u>-0.20</u>	-	<u>0.52</u>	0.08	0.09	-0.10	<u>-0.08</u>	<u>0.33</u>	0.16	-0.04
4	<i>Fv'/Fm'</i> 100	<u>0.39</u>	<u>0.40</u>	0.10	-	0.07	0.00	-0.08	-0.09	<u>0.42</u>	<u>0.20</u>	-0.04
5	RWC 20	-0.13	-0.03	0.06	-0.15	-	<u>0.22</u>	<u>-0.30</u>	<u>-0.20</u>	<u>0.19</u>	<u>-0.24</u>	<u>-0.19</u>
6	RWC 100	0.01	0.01	0.03	0.11	0.05	-	<u>-0.21</u>	-0.15	0.11	-0.07	-0.16
7	SDW	<u>0.59</u>	<u>0.50</u>	<u>-0.26</u>	<u>0.39</u>	-0.14	-0.05	-	<u>0.82</u>	-0.14	0.16	<u>0.64</u>
8	SFW	<u>0.45</u>	<u>0.53</u>	<u>-0.26</u>	<u>0.33</u>	-0.09	-0.02	<u>0.87</u>	-	-0.09	<u>0.27</u>	<u>0.89</u>
9	SLA	<u>-0.31</u>	-0.10	<u>0.26</u>	<u>-0.21</u>	0.04	-0.06	<u>-0.29</u>	<u>-0.30</u>	-	<u>0.50</u>	0.08
10	TLA	<u>0.81</u>	<u>0.74</u>	-0.11	<u>0.27</u>	-0.09	0.01	<u>0.43</u>	<u>0.30</u>	<u>0.24</u>	-	<u>0.57</u>
11	Yield	<u>0.71</u>	<u>0.89</u>	<u>-0.26</u>	<u>0.42</u>	-0.06	0.01	<u>0.77</u>	<u>0.86</u>	<u>-0.22</u>	<u>0.61</u>	-

Table S3b. Correlation coefficients (R) for traits associated with water-sufficient (WS) in the bottom diagonal and water-deficient (WD) in the top diagonal for the 44 A. tricolor accessions in Trial II (n=4). 1: Intracellular CO₂ concentration (Ci) at 100% WHC, 2: Ci at 50% WHC, 3: Transpiration (E) at 100% WHC, 4: E at 50% WHC, 5: Stomatal conductance (Gs) at 100% WHC, 6: Gs at 50% WHC, 7: Leaf dry weight (LDW), 8: Leaf fresh weight (LFW), 9: Stomatal limitation (Ls) at 100% WHC, 10: Ls at 50% WHC, 11: Photosynthesis (Pn) at 100% WHC, 12: Pn at 50% WHC, 13: Dark-adapted quantum yield (Fv/Fm) at 20% WHC, 14: Fv/Fm at 50% WHC, 15: Fv/Fm at 100% WHC, 16: Light-adapted quantum yield (Fv'/Fm') at 20% WHC, 17: Fv'/Fm' at 50% WHC, 18: Fv'/Fm' at 100% WHC, 19: Relative water content (RWC) at 20% WHC, 20: RWC at 50% WHC, 21: RWC at 100% WHC, 22: Stem dry weight (SDW), 23: Stem fresh weight (SFW), 24: Specific leaf area (SLA), 25: Total leaf area (TLA), 26: Instantaneous water use efficiency (WUE) at 100% WHC, 27: WUE at 50% WHC, 28: Intrinsic water use efficiency (WUEi) at 100% WHC, 29: WUEi at 50% WHC. Probability significantly different at P<0.05, P<0.01 or P<0.001. Table 7. a. Correlation coefficients (R) for traits associated with water-sufficient (WS) in the bottom diagonal and water-deficient (WD) in the top diagonal for the 44 A. tricolor accessions in Trial I

Table S3c: Correlation coefficient (r) between drought-adaptive capabilities and physiological responses. 1: Intracellular CO₂ concentration (Ci) at 100% WHC, 2: Ci at 50% WHC, 3: Transpiration (E) at 100% WHC, 4: E at 50% WHC, 5: Stomatal conductance (Gs) at 100% WHC, 6: Gs at 50% WHC, 7: Leaf dry weight (LDW), 8: Leaf fresh weight (LFW), 9: Stomatal limitation (Ls) at 100% WHC, 10: Ls at 50% WHC, 11: Photosynthesis (Pn) at 100% WHC, 12: Pn at 50% WHC, 13: Dark-adapted quantum yield (Fv/Fm) at 20% WHC, 14: Fv/Fm at 50% WHC, 15: Fv/Fm at 100% WHC, 16: Light-adapted quantum yield (Fv'/Fm') at 20% WHC, 17: Fv'/Fm' at 50% WHC, 18: Fv'/Fm' at 100% WHC, 19: Relative water content (RWC) at 20% WHC, 20: RWC at 50% WHC, 21: RWC at 100% WHC, 22: Stem dry weight (SDW), 23: Stem fresh weight (SFW), 24: Specific leaf area (SLA), 25: Total leaf area (TLA), 26: Instantaneous water use efficiency (WUE) at 100% WHC, 27: WUE at 50% WHC, 28: Intrinsic water use efficiency (WUEi) at 100% WHC, 29: WUEi at 50% WHC, 30: Days to flowering (DTF), 31: Days to recover (DTR), 32: Days to wilting (DTW), 33: Drought symptoms scoring after 5 days of recovering (DS-5R), 34: Drought symptoms scoring at first day of recovering (DS-1R), LWS: Leaf wilting scoring. Probability significantly different at P<0.05, P<0.01 or P<0.001

Pearson correlation (Re-water assessment)																																			
Traits	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
30 Yield	0.05	-0.06	0.17	0.00	0.10	0.05	<u>0.53</u>	<u>0.81</u>	-0.05	0.06	0.01	0.03	-0.15	0.11	-0.08	0.10	<u>-0.31</u>	-0.12	<u>0.46</u>	0.08	-0.05	<u>0.46</u>	<u>0.84</u>	0.00	<u>0.60</u>	<u>-0.17</u>	-0.01	-0.14	-0.05						
31 DTF	0.12	0.12	0.02	0.14	0.04	0.09	<u>0.35</u>	<u>0.27</u>	-0.11	-0.12	-0.08	0.02	0.14	0.07	0.11	0.03	-0.04	-0.07	-0.06	0.00	0.02	<u>0.20</u>	0.03	-0.13	<u>0.25</u>	-0.06	-0.12	-0.13	-0.07	<u>0.18</u>					
32 DTR	-0.04	-0.03	-0.10	-0.09	-0.15	-0.08	-0.12	<u>-0.21</u>	0.05	0.03	-0.03	-0.07	0.04	-0.03	0.05	0.07	0.07	0.09	0.01	0.02	0.14	<u>-0.22</u>	<u>-0.21</u>	0.01	-0.13	0.14	0.06	<u>0.22</u>	0.12	<u>-0.25</u>	-0.16				
33 DTW	0.09	0.11	<u>0.25</u>	0.11	0.11	<u>0.22</u>	-0.12	0.11	-0.09	-0.11	0.05	0.19	-0.06	-0.17	0.16	-0.01	-0.10	-0.08	<u>0.24</u>	-0.02	0.03	<u>-0.21</u>	-0.06	0.03	0.06	<u>-0.22</u>	0.00	-0.08	-0.17	0.03	-0.10	0.15			
34 DS-5R	-0.02	0.00	0.00	-0.01	0.04	-0.02	0.08	-0.09	0.03	-0.01	0.03	0.02	-0.04	0.02	0.00	-0.07	0.03	0.06	<u>-0.17</u>	<u>-0.18</u>	-0.02	<u>0.26</u>	0.03	-0.13	-0.11	0.04	0.04	-0.03	0.05	-0.03	<u>0.18</u>	-0.05	<u>-0.25</u>		
35 DS-1R	-0.09	0.05	-0.07	0.05	0.00	0.01	0.16	-0.07	0.09	-0.05	0.06	-0.03	-0.02	0.09	0.02	0.04	0.11	0.06	<u>-0.19</u>	-0.10	0.04	0.18	0.12	-0.14	0.00	0.15	-0.07	0.09	-0.03	0.04	0.15	<u>0.38</u>	-0.14	<u>0.52</u>	
36 LWS	-0.07	0.07	0.03	-0.06	0.09	-0.05	-0.07	0.01	0.06	-0.07	0.12	0.00	-0.08	0.05	0.04	-0.01	0.10	<u>0.19*</u>	-0.06	-0.04	0.00	0.00	0.06	0.05	-0.03	0.12	0.01	0.02	-0.01	0.04	0.02	<u>-0.29</u>	0.06	0.11	-0.11

Table S4a: Mean comparisons of drought tolerance indices among amaranth accession.

Entry	Genotype	Trial I										Trial II									
		Yp	Ys	DI	GMP	MP	SSI	STI	TOL	YSI	Ypi	Ysi	DI	GMP	MP	SSI	STI	TOL	YSI		
1	AV-TRI 2	11.14a	3.09a	0.20a	5.86ab	7.11ab	0.98a	0.14ab	8.05a	0.28a	26.76def	17.88d	0.41a	21.49ef	22.32de	1.09a	0.22d	8.87a	0.66a		
2	AV-TRI 18	18.44a	5.13a	0.38a	9.58ab	11.79ab	0.95a	0.38ab	13.31a	0.30a	68.80ab	38.85a-d	0.68a	51.49abc	53.82abc	1.4a	1.16a-d	29.95a	0.57a		
3	AV-TRI 26	18.57a	3.05a	0.15a	7.30ab	10.81ab	1.09a	0.22ab	15.52a	0.20a	52.07a-f	33.60a-d	0.71a	41.31a-f	42.84a-e	1.21a	0.81a-d	18.47a	0.63a		
4	AV-TRI 33	14.44a	4.15a	0.32a	7.60ab	9.29ab	0.95a	0.25ab	10.29a	0.31a	37.07b-f	30.46a-d	0.76a	33.59a-f	33.76b-e	-0.55	0.51bcd	6.62a	0.83a		
5	AV-TRI 34	12.04a	5.43a	0.65a	7.99ab	8.73ab	0.62a	0.29ab	6.61a	0.55a	47.01a-f	29.87a-d	0.60a	37.27a-f	38.44a-e	1.13a	0.60a-d	17.14a	0.65a		
6	AV-TRI 39	15.59a	3.89a	0.25a	7.71ab	9.74ab	0.98a	0.26ab	11.70a	0.28a	42.56a-f	34.37a-d	0.85a	38.16a-f	38.46a-e	0.67a	0.66a-d	8.19a	0.79a		
7	AV-TRI 40	16.68a	3.94a	0.26a	7.94ab	10.31ab	1.01a	0.26ab	12.74a	0.26a	41.78a-f	30.32a-d	0.77a	34.97a-f	36.05a-e	0.77a	0.55a-d	11.46a	0.76a		
8	AV-TRI 44	21.74a	5.60a	0.35a	11.01a	13.67ab	1.00a	0.50ab	16.14a	0.27a	58.23a-e	37.96a-d	0.76a	46.89a-e	48.10abc	1.06a	0.97a-d	20.27a	0.67a		
9	AV-TRI 49	18.33a	5.79a	0.54a	10.07ab	12.06ab	0.86a	0.42ab	12.54a	0.37a	49.57a-f	37.32a-d	0.87a	42.88a-f	43.44a-e	0.84a	0.83a-d	12.25a	0.74a		
10	AV-TRI 51	18.41a	4.15a	0.34a	8.31ab	11.28ab	1.00a	0.28ab	14.26a	0.27a	44.24a-f	33.86a-d	0.85a	38.29a-f	39.05a-e	0.55a	0.67a-d	10.38a	0.83a		
11	AV-TRI 53	18.95a	4.21a	0.24a	8.80ab	11.58ab	1.06a	0.33ab	14.75a	0.22a	38.93a-f	24.53a-d	0.58a	30.05b-f	31.73b-e	0.90a	0.39cd	14.39a	0.72a		
12	AV-TRI 54	19.76a	5.34a	0.48a	9.88ab	12.55ab	0.90a	0.4ab	14.42a	0.34a	44.77a-f	31.95a-d	0.99a	36.18a-f	38.36a-e	0.68a	0.58a-d	12.81a	0.79a		
13	AV-TRI 56	12.09a	4.16a	0.41a	6.93ab	8.13ab	0.91a	0.21ab	7.93a	0.34a	45.12a-f	28.74a-d	0.69a	35.02a-f	36.93a-e	1.03a	0.54a-d	16.38a	0.68a		
14	AV-TRI 57	15.9a	4.10a	0.42a	7.65ab	10.00ab	0.83a	0.25ab	11.80a	0.39a	64.25abc	29.60a-d	0.42a	43.44a-f	46.92a-d	1.71a	0.82a-d	34.65a	0.47a		
15	AV-TRI 58	15.6a	3.81a	0.29a	7.50ab	9.7ab	0.91a	0.26ab	11.79a	0.33a	47.83a-f	35.62a-d	0.97a	40.34a-f	41.72a-e	0.76a	0.72a-d	12.21a	0.77a		
16	AV-TRI 68	11.74a	4.98a	0.55a	7.56ab	8.36ab	0.77a	0.25ab	6.76a	0.44a	46.97a-f	36.95a-d	1.18a	40.27a-f	41.96a-e	0.11a	0.76a-d	10.02a	0.97a		
17	AV-TRI 69	15.11a	3.86a	0.25a	7.57ab	9.48ab	0.99a	0.25ab	11.25a	0.27a	47.43a-f	22.05bcd	0.31a	32.26b-f	34.74b-e	1.74a	0.47bcd	25.38a	0.46a		
18	AV-TRI 3	15.58a	5.79a	0.69a	9.13ab	10.68ab	0.81a	0.34ab	9.79a	0.41a	64.84abc	47.90abc	1.09a	55.59ab	56.37ab	0.75a	1.46ab	16.94a	0.77a		
19	AV-TRI 11	26.47a	5.24a	0.29a	11.45a	15.85a	1.09a	0.56a	21.23a	0.20a	61.29abc	42.96a-d	0.91a	51.28abc	52.12abc	0.96a	1.14a-d	18.32a	0.70a		
20	AV-TRI 24	12.64a	5.51a	0.58a	8.34ab	9.07ab	0.77a	0.28ab	7.13a	0.44a	54.51a-e	41.72a-d	0.99a	47.51a-d	48.11abc	0.65a	1.01a-d	12.80a	0.80a		
21	AV-TRI 31	14.68a	2.98a	0.16a	6.55ab	8.83ab	1.08a	0.17ab	11.69a	0.21a	46.12a-f	38.40a-d	1.02a	41.75a-f	42.26a-e	0.49a	0.77a-d	7.72a	0.85a		
24	US-TRI 3	16.34a	4.28a	0.44a	7.87ab	10.31ab	0.80a	0.27ab	12.06a	0.41a	33.58c-f	25.65a-d	0.65a	28.96c-f	29.61cde	0.72a	0.38cd	7.92a	0.78a		
25	US-TRI 6	8.12a	1.72a	0.32a	3.13b	4.92b	0.67a	0.04b	6.40a	0.51a	19.91f	20.17bcd	0.70a	19.71f	20.04e	-0.43	0.17d	-0.26	1.13a		
26	US-TRI 13	16.32a	4.22a	0.27a	8.23ab	10.27ab	1.02a	0.28ab	12.09a	0.26a	44.86a-f	26.86a-d	0.51a	34.47a-f	35.86a-e	1.19a	0.52bcd	18.00a	0.63a		
27	US-TRI 14	11.95a	4.02a	0.35a	6.87ab	7.99ab	0.88a	0.2ab	7.93a	0.35a	36.94b-f	34.87a-d	1.01a	35.80a-f	35.91a-e	0.13a	0.56a-d	2.07a	0.96a		
28	US-TRI 15	18.96a	4.04a	0.51a	7.50ab	11.50ab	0.97a	0.25ab	14.93a	0.29a	38.77a-f	32.58a-d	1.05a	34.00a-f	35.67a-e	0.46a	0.54a-d	6.19a	0.86a		
29	US-TRI 16	16.54a	3.53a	0.21a	7.48ab	10.04ab	1.06a	0.23ab	13.00a	0.22a	53.22a-f	35.26a-d	0.87a	41.96a-f	44.24a-e	1.08a	0.81a-d	17.95a	0.67a		
30	US-TRI 19	14.38a	3.62a	0.27a	6.99ab	9.00ab	0.94a	0.21ab	10.76a	0.31a	39.33a-f	32.17a-d	0.82a	35.42a-f	35.75a-e	0.55a	0.55a-d	7.17a	0.83a		
31	US-TRI 21	21.14a	5.16a	0.31a	10.40a	13.15ab	1.02a	0.44ab	15.99a	0.25a	54.95a-e	51.94a	1.56a	53.02abc	53.45abc	0.05a	1.27abc	3.01a	1.02a		
32	US-TRI 24	11.81a	3.82a	0.30a	6.69ab	7.82ab	0.90a	0.20ab	7.99a	0.34a	61.43abc	33.41a-d	0.56a	45.20a-f	47.42a-d	1.51a	0.93a-d	28.02a	0.53a		
33	US-TRI 25	11.44a	3.78a	0.32a	6.52ab	7.61ab	0.89a	0.17ab	7.66a	0.35a	38.48a-f	23.04a-d	0.44a	29.59c-f	30.76cde	1.26a	0.39cd	15.44a	0.61a		
34	US-TRI 29	17.24a	3.33a	0.17a	7.48ab	10.29ab	1.08a	0.23ab	13.91a	0.21a	51.84a-f	25.62a-d	0.42a	36.09a-f	38.73a-e	1.57a	0.58a-d	26.22a	0.51a		
35	US-TRI 39	18.7a	4.54a	0.34a	8.98ab	11.62ab	0.92a	0.35ab	14.16a	0.32a	72.01a	49.15ab	1.03a	59.35a	60.58a	1.02a	1.55a	22.86a	0.69a		
36	US-TRI 46	20.31a	3.84a	0.18a	8.77ab	12.07ab	1.09a	0.31ab	16.47a	0.20a	59.18a-e	40.23a-d	0.84a	48.65abc	49.71abc	1.05a	1.05a-d	18.94a	0.67a		
37	US-TRI 47	7.11a	3.83a	1.07a	4.86ab	5.47b	0.15a	0.11ab	3.28a	1.11a	25.27ef	20.01cd	0.49a	22.38def	22.64de	0.74a	0.23d	5.26a	0.77a		
38	US-TRI 20	12.02a	5.01a	0.52a	7.72ab	8.52ab	0.76	0.25ab	7.01a	0.45a	40.32a-f	31.42a-d	0.75a	35.49a-f	35.87a-e	0.69a	0.56a-d	8.89a	0.79a		
39	US-TRI 30	9.02a	3.71a	0.41a	5.69ab	6.36ab	0.75	0.13ab	5.31a	0.45a	45.81a-f	33.00a-d	0.78a	38.46a-f	39.40a-e	0.73a	0.66a-d	12.81a	0.78a		
40	US-TRI 48	19.07a	3.05a	0.12a	7.59ab	11.06ab	1.15	0.24ab	16.02a	0.16a	46.88a-f	28.21a-d	0.52a	36.27a-f	37.54a-e	1.26a	0.57a-d	18.67a	0.61a		
41	US-TRI 49	15.07a	3.23a	0.16a	6.97ab	9.15ab	1.07	0.21ab	11.84a	0.22a	47.02a-f	30.27a-d	0.67a	37.08a-f	38.65a-e	1.02a	0.61a-d	16.76a	0.68a		
42	US-TRI 51	22.28a	5.21a	0.32a	10.61a	13.75ab	1.02	0.46ab	17.06a	0.25a	60.94abc	48.22abc	1.15a	54.19abc	54.58abc	0.66a	1.28abc	12.72a	0.80a		
43	Local Red	14.26a	3.65a	0.33a	6.91ab	8.96ab	0.90a	0.20ab	10.61a	0.34a	59.42a-d	40.89a-d	0.87a	49.1abc	50.16abc	1.10a	1.17a-d	18.53a	0.66a		
44	Local PR	15.59a	4.79a	0.47a	8.36ab	10.19ab	0.85a	0.29ab	10.80a	0.38a	58.83a-e	37.62a-d	0.89a	45.81a-e	48.22abc	1.00a	0.93a-d	21.21a	0.69a		
45	EW-Thida	19.45a	5.03a	0.41a	9.59ab	12.24ab	0.94a	0.37ab	14.41a	0.31a	44.96a-f	27.58a-d	0.69a	34.19a-f	36.27a-e	0.76a	0.51bcd	17.38a	0.76a		
46	EW-Zeya	13.44a	3.68a	0.37a	6.68ab	8.56ab	0.84a	0.21ab	9.76a	0.39a	52.67a-f	29.46a-d	0.58a	38.53a-f	41.07a-e	1.34a	0.65a-d	23.21a	0.59a		

Table S4b. The analysis of variance and correlation coefficient (R) for stress intensity (SI) drought resistance index (DI), geometric mean probability (GMP), mean productivity (MP), stress susceptibility index (SSI), stress tolerance index (STI), stress tolerance (TOL) and yield stability index (YSI) in Trial I (bottom diagonal) and Trial II (top diagonal).

Drought stress indices									
		SI	DI	GMP	MP	SSI	STI	TOL	YSI
	Trial I	0.73	ns	*	*	ns	*	ns	ns
	Trial II	0.31	ns	***	***	ns	***	ns	ns
	Yp	Ys	DI	GMP	MP	SSI	STI	TOL	YSI
Yp	-	0.51**	-0.01	0.86**	0.90**	0.44**	0.84**	0.67**	-0.44**
Ys	0.12	-	0.82**	0.88**	0.83**	-0.49**	0.86**	-0.29**	0.49**
DI	-0.48**	0.61	-	0.47	0.40**	-0.86**	0.45**	-0.72**	0.86**
GMP	0.79**	0.68	-0.05	-	.993**	-0.03	0.98**	0.20**	0.03
MP	0.98**	0.53	-0.33**	0.90**	-	0.04	0.97**	0.29**	-0.04
SSI	0.62**	-0.29	-0.91**	0.33**	0.53**	-	-0.03	0.91**	0.90**
STI	0.77**	0.68	-0.01	0.98**	0.88*	0.27**	-	0.20**	0.03
TOL	0.97**	-0.11	-0.62**	0.64**	0.90**	0.69**	0.62**	-	-0.91**
YSI	-0.62**	0.29	0.91**	-0.33**	-0.53**	-0.80*	-0.27**	-0.69**	-

Probability significantly different at P<0.05 (*), P<0.01 (**), P<0.001 (***) or non-significant (ns).

Table S5: PCA biplot

TRIAL I					TRIAL II				
Principle component	WS		WD		Principle component	WS		WD	
	PC1	PC2	PC1	PC2		PC1	PC2	PC1	PC2
Latent roots	4.027	1.882	3.535	2.462	Latent roots	5.07	4.66	4.55	3.66
Percentage (%) variation	44.75	20.92	39.28	27.36	Percentage (%) variation	29.84	27.42	26.78	21.53
Cumulative % variation	44.75	65.67	39.28	66.64	Cumulative % variation	29.84	57.26	26.78	48.31
Latent vectors					Latent vectors				
Fv_Fm_L	0.08	0.11	0.01	0.23	Ci	-0.38	0.10	-0.15	0.46
LDW	0.44	0.16	0.46	0.10	E	-0.39	-0.06	0.12	0.26
LFW	0.43	0.33	0.47	0.21	FvFm_D	-0.03	-0.26	-0.25	-0.21
RWC	-0.03	0.10	-0.15	0.20	FvFm_L	0.05	0.01	0.01	-0.14
SDW	0.35	-0.46	0.16	-0.56	Gs	-0.36	-0.03	0.17	0.25
SFW	0.32	-0.49	0.25	-0.49	LDW	0.08	0.39	0.39	0.09
SLA	-0.02	0.47	0.19	0.40	LFW	0.10	0.42	0.36	0.08
TLA	0.41	0.40	0.46	0.27	Ls	0.38	-0.10	0.14	-0.47
Yp	0.48	-0.10	0.46	-0.24	Pn	-0.21	-0.10	0.21	-0.04
					RWC	0.16	0.10	0.24	0.09
					SDW	-0.08	0.32	0.20	-0.01
					SFW	-0.13	0.29	0.27	-0.01
					SLA	0.06	-0.29	0.00	0.04
					TLA	0.13	0.31	0.37	0.11
					WUE	0.40	-0.07	0.16	-0.34
					WUEi	0.36	0.02	0.15	-0.46
					Yp	-0.04	0.43	0.41	0.05