

Supplementary Table 1 General combining ability effects for lines and testers under individual environments as well as pooled environments

Line	Grain yield/ plant (g)			Dry fodder yield/plant (g)			Fe content (ppm)			Zn Content (ppm)		
	E1	E2	Pooled	E1	E2	Pooled	E1	E2	Pooled	E1	E2	Pooled
P1	-0.24**	-0.01	-0.12**	-1.03**	-0.33**	-0.68**	16.58**	16.3**	16.44**	8.97**	7.92**	8.45**
P2	0.03	0.09**	0.06**	-0.74**	-0.51**	-0.63**	0.53	-0.6	-0.03	2.21**	2.4**	2.3**
P3	-0.07**	0.09**	0.01	-0.31**	0.38**	0.04	2.63**	1.97**	2.3**	-0.22	-0.08	-0.15
P4	0.3**	0.29**	0.29**	1.1**	-0.21**	0.44**	9.01**	8.88**	8.94**	-4.55**	-3.79**	-4.17**
P5	-0.08**	0.02	-0.03	0.48**	0.37**	0.43**	3.53**	4.4**	3.97**	1.5*	3.69**	2.59**
P6	-0.06**	0.02	-0.02	0.12*	-0.85**	-0.36**	3.91**	3.88**	3.9**	4.02**	3.45**	3.73**
P7	-0.09**	-0.22**	-0.15**	-0.52**	-1.07**	-0.79**	-11.23**	-9.08**	-10.15**	-2.98**	-1.98**	-2.48**
P8	-0.06**	0.3**	0.12**	-0.8**	-0.77**	-0.79**	-4.23**	-4.27**	-4.25**	-5.12**	-4.98**	-5.05**
P9	-0.05*	0.41**	0.18**	0.67**	-0.35**	0.16**	1.87**	1.69*	1.78**	-1.6**	-2.5**	-2.05**
P10	-0.06**	0.4**	0.17**	-0.46**	-0.25**	-0.35**	-0.99	-0.36	-0.68	2.21**	1.54*	1.88**
P11	0.22**	0.43**	0.33**	0.48**	0.48**	0.48**	-6.85**	-7.08**	-6.96**	-2.46**	-1.89**	-2.17**
P12	0.15**	-0.19**	-0.02	0.58**	0.8**	0.69**	-3.42**	-3.74**	-3.58**	-2.74**	-3.03**	-2.89**
P13	0.07**	-0.62**	-0.28**	0.62**	1.12**	0.87**	-0.7	-0.46	-0.58	-5.36**	-5.5**	-5.43**
P14	-0.07**	-0.47**	-0.27**	-0.03	0.72**	0.35**	-9.42**	-9.27**	-9.34**	-0.55	-1.46*	-1*
P15	0.01	-0.53**	-0.26**	-0.17**	0.47**	0.15**	-1.23	-2.27**	-1.75**	6.69**	6.21**	6.45**
SE (gi) for line	0.02	0.02	0.02	0.06	0.08	0.05	0.64	0.72	0.48	0.59	0.61	0.43
SE (gi-gj) for line	0.03	0.03	0.02	0.08	0.11	0.07	0.91	1.01	0.68	0.84	0.86	0.6
Testers												
P16	-0.02*	-0.11**	-0.07**	-0.27**	-0.32**	-0.3**	-5.99**	-5.5**	-5.75**	-5.1**	-4.53**	-4.81**
P17	-0.11**	-0.09**	-0.1**	0.06	-0.12*	-0.03	-3.95**	-3.48**	-3.71**	-0.17	-0.79	-0.48
P18	0.05**	0.19**	0.12**	0.09*	-0.04	0.03	4.94**	4.81**	4.87**	3.39**	3.34**	3.36**
P19	0.14**	-0.05**	0.04**	0.07	-0.11*	-0.02	5.39**	4.81**	5.1**	1.32**	1.87**	1.6**
P20	-0.04**	0.04**	0	0.02	0.16**	0.09**	5.61**	4.76**	5.19**	1.99**	1.03*	1.51**
P21	-0.03**	0.04**	0	0.23**	-0.02	0.1**	-3.77**	-2.88**	-3.33**	-1.43**	-1.44**	-1.44**
P22	0.02*	-0.02*	0	-0.2**	0.46**	0.13**	-2.23**	-2.5**	-2.37**	0.01	0.52	0.26
SE (gi) for tester	0.01	0.01	0.01	0.04	0.05	0.03	0.44	0.49	0.33	0.40	0.42	0.29
SE (gi-gj) for tester	0.02	0.02	0.01	0.06	0.08	0.05	0.62	0.69	0.46	0.57	0.59	0.41

* and **, Significant at the $P<0.05$ and 0.01 probability level, respectively.

Supplementary Table 2 Specific combining ability (SCA), heterosis and heterobeltiosis of five top rank hybrids for the traits studied of pearl millet across two environments

Traits	Hybrid	Performance per se			SCA	Heterosis	Heterobeltiosis
		F1 (hybrid)	P1 (line)	P2 (tester)			
Grain yield/plant (g)	P11 × P18	2.17	1.02	1.02	0.34**	112.63**	111.82**
	P2 × P18	2.03	0.89	1.02	0.47**	112.04**	99.38**
	P8 × P20	1.93	0.92	0.81	0.43**	123.88**	110.26**
	P2 × P19	1.93	0.89	0.86	0.45**	120.75**	116.27**
	P9 × P18	1.81	1.32	1.02	0.13**	54.95**	37.3**
Dry fodder yield/plant (g)	P5 × P22	4.52	2.98	1.67	0.79**	94.27**	51.4**
	P9 × P21	4.28	1.77	1.82	0.85**	139.07**	135.78**
	P12 × P17	4.55	1.85	2.83	0.72**	117.53**	95**
	P12 × P20	4.78	1.85	2.17	0.83**	138.17**	120.77**
	P13 × P22	4.70	1.53	1.67	0.53**	193.75**	182**
Fe content (ppm)	P1 × P18	56.67	87.67	45.50	-4.73**	-14.89**	-35.36**
	P1 × P19	83.50	87.67	70.67	21.88**	5.47	-4.75**
	P3 × P18	58.50	67.00	45.50	11.24**	4.00	-12.69**
	P6 × P20	58.50	55.50	75.67	9.34**	-10.8**	-22.69**
	P9 × P19	62.00	73.17	70.67	15.05**	-13.79**	-15.26**
Zn Content (ppm)	P1 × P18	48.67	51.83	33.67	3.87**	13.84**	-6.11**
	P1 × P19	57.17	51.83	42.67	14.14**	20.99**	10.29**
	P6 × P22	47.33	33.00	39.00	10.36**	31.48**	21.37**
	P14 × P18	46.17	35.33	33.67	10.83**	33.82**	30.66**
	P15 × P20	51.00	47.00	47.83	10.06**	7.56	6.62

* and **, Significant at the $P < 0.05$ and 0.01 probability level, respectively.