

Table 1 . Means, phenotypic coefficient of variability (CV %), heritability in broadsense(H_b) and expected genetic advance (ΔG) of the F_2 base populations I and II for the studied traits; season 2008.

Item	Seed cotton yield /plant , g.	Lint yield /plant , g.	Lint percentage	No. of bolls /plant	Boll weight , g.	Seed index	Lint index	Earliness index	Days to first flower
<u>E₂-population I</u>									
Mean \pm SE	56.92 ± 1.33	19.41 ± 0.51	33.50 ± 0.18	20.89 ± 0.47	2.73 ± 0.02	9.34 ± 0.07	4.70 ± 0.03	76.94 ± 0.83	63.53 ± 0.22
CV %	40.87	46.39	9.46	39.03	14.94	12.95	12.57	18.91	6.12
H_b	0.99	0.97	0.64	0.93	0.79	0.93	0.57	0.98	0.72
ΔG /Mean %	71.17	79.01	10.69	63.61	21.14	21.29	12.67	32.49	7.81
<u>Giza 90</u>									
Mean \pm SE	72.60 ± 0.58	23.07 ± 0.35	31.77 ± 0.39	27.60 ± 0.31	2.64 ± 0.03	9.96 ± 0.06	4.65 ± 0.09	72.88 ± 0.5	70.32 ± 0.45
CV %	3.55	6.84	5.51	5.00	4.83	2.49	8.72	3.07	2.86
<u>Giza 85</u>									
Mean \pm SE	59 \pm 0.49	19.15 \pm 0.37	32.43 \pm 0.45	24.16 \pm 0.63	2.47 \pm 0.05	9.01 \pm 0.08	4.33 \pm 0.08	67.88 \pm 0.5	73.87 \pm 0.56
CV %	3.74	8.66	6.26	11.65	9.49	3.94	8.72	3.30	2.80
<u>E₂-population II</u>									
Mean \pm SE	Mean \pm SE	60.04 ± 1.68	21.82 ± 0.65	36.56 ± 0.31	22.74 ± 0.66	2.68 ± 0.03	9.00 ± 0.08	5.24 ± 0.07	68.02 ± 1.51
CV %	43.86	46.35	13.48	45.76	16.17	14.75	21.18	34.75	12.03
H_b	0.99	0.97	0.73	0.97	0.81	0.91	0.75	0.99	0.93
ΔG /Mean %	77.53	80.60	17.66	79.69	23.45	24.11	28.46	61.44	20.02
<u>Giza 83</u>									
Mean \pm SE	69.91 ± 0.71	24.29 ± 0.39	34.74 ± 0.42	26.64	2.63 ± 0.03	9.65 ± 0.0	5.14 ± 0.0	70.63 ± 0.59	71.22 ± 0.47

				± 0.3 2		9	9		
CV %	0.71	0.39	0.42	0.32	0.03	0.09	0.09	0.59	0.47
<u>Giza70</u>									
Mean \pm SE	53.88 ± 0.60	20.16 ± 0.37	37.46 ± 0.69	18.2 9 ± 0.4 4	2.97 ± 0.05	9.78 ± 0.0 8	5.88 ± 0.1 5	73.18 ± 0.59	72.29 ± 0.53
CV %	1.44	3.04	2.22	3.62	7.71	2.96	6.59	1.05	1.00

ΔG = The expected genetic advance from selection 10 % superior plants.

Table 2. Mean squares, broad sense heritability(H),genotypic (GCV%) and phenotypic coefficients of variability (PCV%) of the selected families for earliness index in population I and II; (season 2011).

	S.O.V	d.f	Mean squares								
			Seed cotton yield /plant, g.	Lint yield /plant, g.	Lint percentage	No. of bolls /plant	Boll weight, g.	Seed index	Lint index	Earliness index	Days to first flower
POP I	Reps	2	1.081	0.057	0.399	0.075	0.00	0.001	0.024	0.959	0.264
	Families	22	656.092**	92.523**	9.802**	62.079**	0.195**	1.946**	1.120**	173.12**	76.667**
	Error	44	0.825	0.246	0.306	0.625	0.005	0.005	0.019	0.772	0.715
	GCV %		26.07	28.42	5.84	18.93	11.70	9.57	13.79	16.20	9.90
	PCV %		26.08	28.49	6.18	19.21	12.11	9.60	14.20	16.25	9.96
	H %		99.94	99.52	89.26	97.09	93.38	99.29	94.24	99.41	98.87
Realized h²	C 2									42.14	
Paren- off spring reg.h²	C 2									16.10	
POP II	Reps	2	0.046	4.721	8.319	1.415	0.029	0.011	0.33	1.229	7.972
	Families	22	745.663**	82.127**	11.326**	96.292**	0.247**	3.547**	1.179**	195.79**	169.708**
	Error	44	4.237	0.788	0.861	1.091	0.012	0.036	0.053	2.391	1.981
	GCV %		24.64	25.05	6.14	24.53	9.97	12.17	14.17	11.32	10.50
	PCV %		24.86	25.41	6.83	24.93	10.75	12.35	15.12	11.53	10.67
	H %		98.31	97.19	80.90	96.76	86.02	97.0 3	87.73	96.45	97.01
Realized h²	C 2									36.49	
Paren -off spring reg.h²	C 2									13.72	

**Significant at 0.01 levels of probability.

Table 3 . Means of the studied traits of the selected families for earliness index in population I ;(season 2011).

	Criterion of selection	Correlated traits							
Fam.NO	Earliness index	Seed cotton yield /plant, g.	Lint yield /plant, g.	Lint percentage	No. of bolls /plant	Boll weight, g.	Seed index	Lint index	Days to first flower
1	80.83	94.83	32.59	34.37	35.30	2.69	9.54	5.00	67.34
18	82.68	73.33	22.05	30.07	26.86	2.73	9.28	3.99	65.74
36	88.17	72.62	25.34	34.90	26.65	2.73	9.91	5.32	66.84
45	81.07	54.37	18.13	33.35	24.77	2.20	9.56	4.79	64.29
56	91.08	99.70	37.12	37.23	34.42	2.90	10.14	6.02	62.56
76	77.26	50.44	15.26	30.25	21.73	2.32	9.72	4.22	67.82
81	88.43	79.54	25.73	32.36	29.49	2.70	11.05	5.29	64.24
94	88.59	62.20	21.10	33.92	22.93	2.71	10.10	5.18	61.56
101	70.53	71.74	24.30	33.88	23.45	3.06	9.68	4.96	72.69
110	76.88	42.35	14.10	33.28	17.21	2.46	9.82	4.90	68.95
115	79.11	53.83	16.97	31.53	21.01	2.56	9.43	4.34	69.40
137	71.60	58.95	18.74	31.79	28.68	2.06	8.76	4.08	75.15
193	82.11	81.13	26.36	32.49	33.14	2.45	7.88	3.79	69.31
195	72.72	76.66	25.83	33.69	27.75	2.76	10.12	5.14	76.62
227	76.64	79.94	24.07	30.12	27.51	2.91	9.76	4.21	69.43
234	91.56	94.71	29.97	31.64	34.20	2.77	10.91	5.05	62.21
262	77.93	56.57	18.32	32.38	27.08	2.09	9.10	4.36	70.10
294	90.81	57.52	17.97	31.25	23.72	2.43	10.27	4.67	63.38
299	79.75	72.30	23.23	32.12	26.36	2.74	10.05	4.76	66.39
300	68.51	62.38	18.69	29.97	24.89	2.51	7.91	3.39	75.33
Average	80.81	69.76	22.79	32.53	26.86	2.59	9.65	4.66	67.97
Bulk	71.99	69.50	23.84	34.31	26.56	2.62	9.17	4.79	69.54
G90	67.72	65.09	21.80	33.50	24.97	2.61	9.21	4.64	76.03
G85	70.78	61.09	18.90	30.94	22.25	2.75	8.32	3.73	79.77
Rev.LSD0.05	1.30	1.34	0.73	0.82	1.17	0.10	0.10	0.20	1.25
Rev.LSD0.01	1.71	1.77	0.97	1.08	1.54	0.14	0.14	0.27	1.65

Table 4. Observed direct and correlated responses after the second cycle of pedigree selection of the selected families for earliness index measured in percentage from the unselected bulk in population I; (season 2011).

Fam. NO	Criterion of selection	Correlated traits							
	Earliness index	Seed cotton yield /plant, g.	Lint yield /plant, g.	Lint percentage	No. of bolls /plan	Boll weight, g.	Seed index, g.	Lint index, g.	Days to first flower
1	12.28**	36.45**	36.70**	0.17	32.91**	2.67	4.03**	4.38*	-3.16**
18	14.85**	5.51**	-7.51	-12.36	1.13	4.20*	1.20*	-16.70	-5.46**
36	22.48**	4.49**	6.29**	1.72	0.34	4.20*	8.07**	11.06**	-3.88**
45	12.61**	-21.77	-23.95	-2.80	-6.74	-16.03	4.25**	0.00	-7.55**
56	26.52**	43.45**	55.70**	8.51**	29.59**	10.69**	10.58**	25.68**	-10.04**
76	7.32**	-27.42	-35.99	-11.83	-18.19	-11.45	6.00**	-11.90	-2.47**
81	22.84**	14.45**	7.93**	-5.68	11.03**	3.05	20.50**	10.44**	-7.62**
94	23.06**	-10.50	-11.49	-1.14	-13.67	3.44	10.14**	8.14**	-11.48**
101	-2.03	3.22**	1.93	-1.25	-11.71	16.79**	5.56**	3.55	4.53
110	6.79**	-39.06	-40.86	-3.00	-35.20	-6.11	7.09**	2.30	-0.85
115	9.89**	-22.55	-28.82	-8.10	-20.90	-2.29	2.84**	-9.39	-0.20
137	-0.54	-15.18	-21.39	-7.34	7.98**	-21.37	-4.47	-14.82	8.07
193	14.06**	16.73**	10.57**	-5.30	24.77**	-6.49	-14.07	-20.88	-0.33
195	1.01	10.30**	8.35**	-1.81	4.48*	5.34**	10.36**	7.31**	10.18
227	6.46**	15.02**	0.96	-12.21	3.58	11.07**	6.43**	-12.11	-0.16
234	27.18**	36.27**	25.71**	-7.78	28.77**	5.73**	18.97**	5.43*	-10.54**
262	8.25**	-18.60	-23.15	-5.63	1.96	-20.23	-0.76	-8.98	0.81
294	26.14**	-17.24	-24.62	-8.92	-10.69	-7.25	12.00**	-2.51	-8.86**
299	10.78**	4.03**	-2.56	-6.38	-0.75	4.58*	9.60**	-0.63	-4.53**
300	-4.83	-10.24	-21.60	-12.65	-6.29	-4.20	-13.74	-29.23	8.33
Average	12.25**	5.51**	-4.40	-5.19	1.13	-1.15	5.23**	-2.71	-2.26**
Rev.LSD0.05%	1.81	1.93	3.06	2.39	4.41	3.82	1.09	4.18	1.80
Rev.LSD0.01%	2.38	2.55	4.07	3.15	5.80	5.34	1.53	5.64	2.37

* and ** significant at 0.05 and 0.01 levels of probability ,respectively.

Table 5. Observed direct and correlated responses after the second cycle of pedigree selection of the selected families for earliness index measured in percentage from the better parent in population I; (season 2011).

Fam.NO	Criterion of selection	Correlated traits							
	Earliness index	Seed cotton yield /plant, g.	Lint yield /plant, g.	Lint percentage	No. of bolls /plant	Boll weight, g.	Seed index,g.	Lint index,g.	Days to first flower
1	14.20**	45.69**	49.50**	2.60	41.37**	-2.18	3.58**	7.76**	-11.43**
18	16.81**	12.66**	1.15	-10.24	7.57**	-0.73	0.76	14.01**	-13.53**
36	24.57**	11.57**	16.24**	4.18**	6.73**	-0.73	7.60**	14.66**	-12.09**
45	14.54**	-16.47	-16.83**	-0.45	-0.80	-20.00	3.80**	3.23	-15.44**
56	28.68**	53.17**	70.28**	11.13**	37.85**	5.45**	10.10**	29.74**	-17.72**
76	9.16**	-22.51	-30.00**	-9.70	-12.98	-15.64	5.54**	-9.05**	-10.80**
81	24.94**	22.20**	18.03**	-3.40	18.10**	-1.82	19.98**	14.01**	-15.51**
94	25.16**	-4.44	-3.21*	1.25	-8.17	-1.45	9.66**	11.64**	-19.03**
101	-0.35	10.22**	11.47**	1.13	-6.09	11.27**	5.10**	6.90**	-4.39**
110	8.62**	-34.94	-35.32**	-0.66	-31.08	-10.55	6.62**	5.60*	-9.31**
115	11.77**	-17.30	-22.16**	-5.88	-15.86	-6.91	2.39**	-6.47**	-8.72**
137	1.16	-9.43	-14.04**	-5.10	14.86**	-25.09	-4.89**	-12.07**	-1.16
193	16.01**	24.64**	20.92**	-3.01	32.72**	-10.91	14.44**	18.32**	-8.84**
195	2.74**	17.78**	18.49**	0.57	11.13**	0.36	9.88**	10.78**	0.78
227	8.28**	22.81**	10.41**	-10.09	10.17**	5.82*	5.97**	-9.27**	-8.68**
234	29.36**	45.51**	37.48**	-5.55	36.96**	0.73	18.46**	8.84**	-18.18**
262	10.10**	-13.09	-15.96**	-3.34	8.45**	-24.00	-1.19	-6.03*	-7.80**
294	28.30**	-11.63	-17.57**	-6.72	-5.01	-11.64	11.51**	0.65	-16.64**
299	12.67**	11.08**	6.56**	-4.12	5.57*	-0.36	9.12**	2.59	-12.68**
300	-3.21**	-4.16	-14.27**	-10.54	-0.32	-8.73	14.12**	26.94**	-0.92
Average	14.17**	7.17**	4.54**	-2.90	7.57**	-5.82	4.78**	0.43	-10.60**
Rev.LSD0.05	1.84	2.06	3.35	2.45	4.69	3.64	1.09	4.31	1.64
Rev.LSD0.01	2.42	2.72	4.45	3.22	6.17	5.09	1.52	5.82	2.17

• * and ** significant at 0.05 and 0.01 levels of probability ,respectively.

Table 6. Means of the studied traits of the selected families for earliness index in population II; (season 2011).

Fam.No	Seed cotton yield /plant, g.	Lint yield /plant, g.	Lint percentage	No. of bolls /plant	Boll weight, g.	Seed index	Lint index	Earliness index	Days to first flower
10	48.57	16.98	34.92	16.16	3.01	10.10	5.43	80.54	75.17
16	71.19	20.59	28.94	27.21	2.62	8.27	3.37	86.56	80.73
87	68.42	21.30	31.11	22.43	3.05	9.87	4.46	89.05	62.79
89	50.73	17.08	33.64	15.16	3.35	10.46	5.31	78.17	72.46
95	73.48	24.24	32.97	25.92	2.84	9.06	4.46	75.77	81.43
101	94.11	30.90	32.84	30.66	3.07	10.73	5.25	75.29	62.60
105	58.29	17.47	29.97	20.79	2.81	9.70	4.15	64.47	78.32
106	66.97	21.77	32.51	22.75	2.94	7.62	3.67	64.51	67.54
107	33.47	11.33	33.86	11.25	2.98	9.48	4.86	54.33	68.55
109	67.96	23.63	34.77	28.39	2.40	10.13	5.40	71.10	86.86
113	54.47	17.44	32.04	23.07	2.37	8.99	4.24	76.92	65.58
114	64.07	20.40	31.84	22.62	2.83	10.05	4.70	64.11	73.91
130	100.07	34.06	34.04	32.92	3.04	10.80	5.58	80.88	82.83
155	68.71	21.80	31.71	22.78	3.02	8.50	3.95	79.23	85.17
174	90.97	31.01	34.10	34.47	2.64	8.70	4.50	84.59	88.78
185	58.84	18.87	32.06	27.46	2.15	7.25	3.42	76.43	73.09
191	72.23	22.03	30.50	23.48	3.08	9.97	4.37	84.65	68.09
197	46.42	17.97	38.66	17.59	2.65	7.34	4.64	72.76	78.52
200	77.79	25.08	32.23	27.46	2.83	11.15	5.31	73.56	81.52
206	84.57	27.18	32.15	27.64	3.06	9.84	4.67	75.01	70.91
Average	67.57	22.06	32.74	24.01	2.84	9.40	4.59	75.39	75.24
Bulk	68.53	22.34	32.60	25.04	2.74	9.35	4.53	72.98	78.60
G83	61.74	20.33	32.93	24.22	2.55	10.37	5.09	75.80	81.22
G70	56.15	18.20	32.43	17.69	3.18	9.44	4.53	69.87	74.09
Rev.LSD0.05	3.04	1.31	1.37	1.54	0.16	0.28	0.34	2.29	2.08
Rev.LSD0.01	4.02	1.73	1.81	2.04	0.21	0.37	0.45	3.02	2.75

Table 7. Observed direct and correlated responses after the second cycle of pedigree selection of the selected families for earliness index measured in percentage of the unselected bulk in population II; (season 2011).

Fam.No	Criterion of selection	Correlated traits							
	Earliness index	Seed cotton yield /plant, g.	Lint yield /plant, g.	Lint percentage	No. of bolls /plant.	Boll weight, g.	Seed index ,g.	Lint index ,g.	Days to first flower
10	10.36**	-29.13	-23.99	7.12**	-35.46	9.85**	8.02**	19.87**	-4.36**
16	18.61**	3.88	-7.83	-11.23	8.67*	-4.38	-11.55	-25.61	2.71
87	22.02**	-0.16	-4.66	-4.57	-10.42	11.31**	5.56**	-1.55	-20.11**
89	7.11**	-25.97	-23.55	3.19	-39.46	22.26**	11.87**	17.22**	-7.81**
95	3.82*	7.22**	8.50**	1.13	3.51	3.65	-3.10	-1.55	3.60
101	3.17*	37.33**	38.32**	0.74	22.44**	12.04**	14.76**	15.89**	-20.36**
105	-11.66	-14.94	-21.80	-8.07	-16.97	2.55	3.74*	-8.39	-0.36
106	-11.61	-2.28	-2.55	-0.28	-9.15	7.30*	-18.50	-18.98	-14.07**
107	-25.55	-51.16	-49.28	3.87	-55.07	8.76**	1.39	7.28	-12.79**
109	-2.58	-0.83	5.77	6.66**	13.38**	-12.41	8.34**	19.21**	10.51
113	5.40**	-20.52	-21.93	-1.72	-7.87	-13.50	-3.85	-6.40	-16.56**
114	-12.15	-6.51	-8.68	-2.33	-9.66	3.28	7.49**	3.75	-5.97**
130	10.82**	46.02**	52.46**	4.42*	31.47**	10.95**	15.51**	23.18**	5.38
155	8.56**	0.26	-2.42	-2.73	-9.03	10.22**	-9.09	-12.80	8.36
174	15.91**	32.74**	38.81**	4.60*	37.66**	-3.65	-6.95	-0.66	12.95
185	4.73**	-14.14	-15.53	-1.66	9.66**	-21.53	-22.46**	-24.50	-7.01**
191	15.99**	5.40*	-1.39	-6.44	-6.23	12.41**	6.63**	-3.53	-13.37**
197	-0.30	-32.26	-19.56	18.59**	-29.75	-3.28	-21.50	2.43	-0.10
200	0.79	13.51**	12.26**	-1.13	9.66**	3.28	19.25**	17.22**	3.72
206	2.78	23.41**	21.67**	-1.38	10.38**	11.68**	5.24**	3.09	-9.78**
Average	3.30*	-1.40	-1.25	0.43	-4.11	3.65	0.53	1.32	-4.27**
Rev.LSD0.05	3.14	4.44	5.86	4.20	6.15	5.84	2.99	7.51	2.65
Rev.LSD0.01	4.14	5.87	7.74	5.55	8.15	7.66	3.96	9.93	3.50

• and ** significant at 0.05 and 0.01 levels of probability ;respectively.

Table 8. Observed direct and correlated responses after the second cycle of pedigree selection of the selected families for earliness index measured in percentage of the better parent in populationII.

* and ** significant at 0.05 and 0.01 levels of probability ;respectively.

Fam. No.	Criterion of selection	Correlated traits							
	Earliness index	Seed cotton yield /plant, g.	Lint yield /plant, g.	Lint percentage	No. of bolls /plant	Boll weight, g.	Seed index,g.	Lint index,g.	Days to first flower
10	6.25**	-21.33	-16.48	6.04**	-33.28	-5.35	-2.60	6.68	1.46
16	14.20**	15.31**	1.28	-12.12	12.35**	-17.61	-20.25	-33.79	8.96
87	17.48**	10.82**	4.77	-5.53	-7.39	-4.09	-4.82	-12.38	-15.25
89	3.13**	-17.83	-15.99	2.16	-37.41	5.35*	0.87	4.32	-2.20
95	-0.04	19.02**	19.23**	0.12	7.02*	-10.69	-12.63	-12.38	9.91
101	-0.67	52.43**	51.99**	-0.27	26.59**	-3.46	3.47	3.14	-15.51**
105	-14.95	-5.59	-14.07	-8.99	-14.16	-11.64	-6.46	-18.47	5.71
106	-14.89	8.47**	7.08*	-1.28	-6.07	-7.55	-26.52	-27.90	-8.84**
107	-28.32	-45.79	-44.27	2.82	-53.55	-6.29	-8.58	-4.52	-7.48**
109	-6.20	10.07**	16.23**	5.59**	17.22**	-24.53	-2.31	6.09	17.24
113	1.48	-11.78	-14.22	-2.70	-4.75	-25.47	-13.31	-16.70	-11.49**
114	-15.42	3.77	0.34	-3.31	-6.61	-11.01	-3.09	-7.66	-0.24
130	6.70**	62.08**	67.54**	3.37	35.92**	-4.40	4.15**	9.63**	11.80
155	4.53**	11.29**	7.23*	-3.70	-5.95	-5.03	-18.03	-22.40	14.95
174	11.60**	47.34**	52.53**	3.55	42.32**	-16.98	-16.10	-11.59	19.83
185	0.83	-4.70	-7.18	-2.64	13.38**	-32.39	-30.09	-32.81	-1.35
191	11.68**	16.99**	8.36*	-7.38	-3.06	-3.14	-3.86	-14.15	-8.10**
197	-4.01	-24.81	-11.61	17.40**	-27.37	-16.67	-29.22	-8.84	5.98
200	-2.96	26.00**	23.36**	-2.13	13.38**	-11.01	7.52**	4.32	10.03
206	-1.04	36.98**	33.69**	-2.37	14.12**	-3.77	-5.11	-8.25	-4.29**
Average	-0.54	9.44**	8.51**	-0.58	-0.87	-10.69	-9.35	-9.82	1.55
Rev.LSD0.05	3.02	4.92	6.44	4.16	6.36	5.03	2.70	6.68	2.81
Rev.LSD0.01	3.98	6.51	8.51	5.50	8.42	6.60	3.57	8.84	3.71