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PERFORMANCE OF SOME SOYBEAN GENOTYPES UNDER DIFFERENT SOWING DATES IN SAUDI ARABIA

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ABSTRACT

A field experiment was conducted at Deirab Agricultural Research Station, College of Agricultural, King Saud University, Saudi Arabia (24° 42 N Latitude and 46° 44 E Longitude) in sandy loam soil during the two summer seasons 2000 and 2001, to study the performance of five genotypes namely: Giza 35, Crawford, Giza 82, Clark and Giza 111 under six sowing dates, viz., Feb. 25, Mar. 25, Apr. 25, May 25, June 25 and July 25. Results showed that Giza 111 produced the highest value of seed yield (2.6 t/ha), and it was recorded 2, 6, 18 and 45 % over Clark, Crawford, Giza 35 and Giza 82, respectively. Sowing date of May 25 produced the highest values of seed yield recording significant increases of 7, 15, 25, 42 and 43 % over June 25, Apr. 25, Mar. 25, July 25 and Feb. 25 in the same order. The present findings indicate that Giza 111, Clark and Crawford seem to be promising for cultivation at Riyadh area, producing good yields when planted at a period extending from Apr. 25 to May 25.

INTRODUCTION

Soybean, *Glycine max* (L) Merrill, a grain legume crop that is native to eastern Asia, Australia and several Pacific islands has now spread to many parts of the world, ranging in climate from temperate, sub-tropical to tropical. The spread of soybean from its native land of origin has been due mainly to its adaptability and predominant use as a food crop for human nutrition, source protein for animal, medicinal plant, and lately as an industrial crop. As a food or feed crop, soybean has become the leading source of edible oils and fats, constituting about 20 % of the world's supply of these nutrients. It produces the highest protein yield per unit area of any crop.

Numerous reports from different parts of the world have indicated that sowing date plays an important role in crop productivity (e.g. Board and Hall, 1984; Sarmah *et al.*, 1984; Mohamed, 1988; Ali, 1993 and Shafshak *et al.*, 1997). They added that higher yields were asscciated with more pods and higher seed weight per plant. Whigham *et al.* (1987) reported that environmental variables (altitude, longitude, day length, maximum and minimum temperatures) were found to be only half as important as management variables (fertilizer applied and nodulation) as determinants of yields.

In Egypt, food legumes program has started a crossing program in 1983, where crosses has been made using very early maturing varieties belonging to maturity groups 000 and 00 with maturity group IV (Crawford variety). The program resulted in developing new soybean genotypes that mature in 90-100 days. The present work aimed at studying the performance of five genotypes (introduced from Egypt) under six sowing dates, at Deirab Agricultural Research Station, Riyadh, Saudi Arabia.

MATERIALS AND METHODS

A field experiment was conducted to study the effect of sowing dates on soybean yield and its components, in sandy loam soil at Deirab Agricultural Research Station, College of Agricultural, King Saud University, Saudi Arabia (24° 42 N Latitude and 46° 44 E Longitude). Mean maximum and minimum temperature and relative humidity during the study of 2000 and 2001 seasons are shown in Table (1).

Table 1: Monthly maximum, minimum, mean temperature and relative humidity during 2000 and 2001 seasons.

	Temperature (Co)						Relative humidity %	
	Maximum		Minimum		Mean			
	2000	2001	2000	2001	2000	2001	2000	2001
February	25.9	27.3	11.7	11.3	18.8	19.3	18.9	18.4
March	28.5	29.3	11.9	11.6	20.2	20.5	24.5	20.5
April	36.1	35.4	19.1	16.5	27.6	26.0	16.8	13.2
May	41.1	41.3	23.6	22.0	32.4	31.7	10.7	10.0
June	43.9	43.9	25.8	25.0	35.1	34.5	10.1	10.3
July	44.3	45.4	26.2	26.0	35.1	35.7	10.8	10.9
August	44.7	45.1	27.5	26.7	36.1	35.9	10.9	10.8
September	41.6	43.5	24.2	22.0	32.9	32.8	11.1	11.2
October	36.9	36.6	18.7	16.7	27.8	26.7	11.3	11.4

A split-plot design with three replications was used. The main plot was assigned to sowing dates (Feb 25, March 25, April 25, May 25, June 25 and July 25), whereas, sub-plot was devoted to the genotypes (Giza 35, Crawford, Giza 82, Clark and Giza 111). The pedigree and maturity group of the soybean genotypes are presented in Table (2).

Table 2: Pedigree and maturity group of the soybean genotypes under study.

Genotype	Pedigree	Maturity group	Origin and specific features
Giza 35	Crawford x Celest	III 110 days	Egypt, early maturing genotype, resistance to the leafworm
Crawford	Williams x Columbus	IV (120-130 days)	USA, high yield potential
Giza 82	Crawford x Maple Presto	II 90-100 days	Egypt, high yield potential
Clark	Lincoln (2) x Richland	IV (120-130 days)	USA, high yield potential
Giza 111	Crawford x Celest	IV 120 days	Egypt, high yield potential and resistance to the leafworm

Each plot consisted of 5 rows, three meters length with 50 cm apart (plot size = 7.5 m^2). To avoid the interplant competition, seedlings were thinned two weeks after sowing to attain the desired stand (Sharaf and Abdalla, 1993). Cultural practices were adopted according to standard recommendation. At harvest, ten guarded plants were taken at random from each plot to determine yield components. Average seed yield was calculated on the basis of plot area. Data were recorded on: number of days to 50 % flowering, number of days to 95 % maturity, plant height (cm), number of pods per plant, seed yield per plant (g), 100-seed weight (g), biological yield (t/ha) and seed yield (t/ha). Data were statistically analyzed over the trials according to the procedure outlined by Snedecor and Cochran (1980).

RESULTS AND DISCUSSION

Data presented in Tables 3, 4, 5, 6 and 7 show the effect of genotypes, sowing dates, years and their interactions on seed yield and its components.

1- Effect of sowing dates:

Sowing dates significantly influenced seed yield and its components (Table 3). On the average, sowing date of May 25 produced the highest values of seed yield recording significant increases of 7, 15, 25, 42 and 43 % over June 25, April 25, March 25, July 25 and Feb. 25, in the same order. The results suggested that the maximum seed yield of soybean could be obtained from planting during a period extending from April 25 up to May 25 due to more favourable weather during this period under condition of this study. Seed yield was remarkably reduced when sowing took place either after June 25 or before April 25. In this connection, the major factors contributing to soybean reduction at late sowing dates could be high temperature and short day length that induce early flowering and termination of the main axis, reduce pod development and in turn seed yield (Zayada *et al.* (1980), Beaver and Johanson (1981), Mohamed (1981), Nigem (1981), Karimi and Ranjabar (1988), Ali (1989), Parvez *et al.* (1989), Elmore (1990), Ali (1993) and Hassan *et al.* (2002)).

2- Effect of genotypes:

Results presented in Table 3 show that genotypes differed significantly in all characters studied. Giza 111 and Clark produced nearly the same yield. Yield increases resulting from Giza 111 were 2, 6, 18 and 45 % over Clark, Crawford, Giza 35 and Giza 82, respectively. Plants of Giza 111 were the tallest, whereas those of Giza 82 were the shortest. Giza 111 surpassed all genotypes in seed weight and pods per plant. However, Crawford had the heaviest weight of 100 seeds followed by Clark and Giza 111. The superiority of Giza 111 may be due to differences exist in genetical make up. Similar differences among genotypes were reported in number of pods, seed weight per plant, plant height and 100-seed weight (Ali, 1993 and Hassan *et al.*, 2002).

3- Effect of years:

Results presented in Table 3 show that seed yield and its components except seed yield (t/ha), plant height and days to flowering, were significantly affected by years. The year 2001, gave the highest values of seed yield and pods per plant. However, it gave the lowest values of 100-seed weight and biological yield (t/ha). Seed yield (t/ha) was not significantly affected by years, this may be due to the fact that climatic conditions was favourable to high productivity in both years.

4- Effect of interactions:

a- Year x genotype interaction

The effect of year x genotype on 100-sed weight, plant height, days to flower and maturity as well as biological yield was significant (Table 4). Crawford, Clark and Giza 111 recorded the highest values of 100-seed weight, plant height as well as biological yield compared with other genotypes.

Table 3: Effect of sowing dates, genotypes, years and their interactions on seed yield and its components (combined data of 2000 and 2001, seasons).

Effect	Days to flowering	Days to maturity	Plant height (cm)	No. of pods/ plant	Seed yield/ plant (g)	100-seed weight (g)	Biological yield (t/ha)	Seed yield (t/ha)
Sowing dates (d)								
Feb. 25	36.90	119.33	42.70	30.65	13.51	14.88	3.611	1.937
Mar. 25	35.13	117.47	43.55	31.72	14.98	15.33	5.479	2.208
Apr. 25	32.40	115.07	44.93	35.40	15.71	15.39	6.361	2.405
May 25	31.97	113.87	48.79	40.10	18.41	15.31	7.293	2.771
Jun. 25	31.73	112.57	48.12	41.32	18.26	15.18	6.420	2.579
Jul 25	30.77	106.37	45.32	28.61	13.85	15.41	5.253	1.938
L.S.D. $_{0.05}$	0.22	0.37	0.49	0.88	0.57	0.11	0.140	0.063
Genotypes (g)								
Giza 35	32.78	111.58	45.06	32.44	13.30	13.94	5.109	2.183
Crawford	34.28	121.08	48.12	36.06	17.85	16.12	6.534	2.442
Giza 82	29.44	93.92	38.82	31.20	11.46	13.69	3.672	1.794
Clark	34.75	122.42	47.66	37.53	18.01	15.90	6.613	2.536
Giza 111	34.50	121.56	48.18	35.92	18.31	15.65	6.752	2.588
L.S.D. $_{0.05}$	0.21	0.35	0.45	0.81	0.52	0.10	0.129	0.058
Years (y)								
1	33.14	113.64	45.19	33.92	15.26	15.19	5.803	2.313
2	33.16	114.58	45.60	35.34	16.31	15.01	5.669	2.300
L.S.D. $_{0.05}$	Ns 0.22	Ns	0.52	0.33	0.06	0.082	Ns	

Table 4: Effect of years x soybean genotype interaction on seed yield and its components (combined data of 2000 and 2001, seasons).

Cultivar	Year	Days to flowering	Days to maturity	Plant height (cm)	No. of pods/ plant	Seed yield/ plant (g)	100-seed weight (g)	Biological yield (t/ha)	Seed yield (t/ha)
Giza 35	2000	32.83	111.44	44.95	31.78	13.13	14.00	5.140	2.177
	2001	32.72	111.72	45.16	33.13	13.47	13.89	5.079	2.188
Crawford	2000	34.39	120.72	47.94	35.39	17.28	16.17	6.613	2.446
	2001	34.17	121.44	48.30	36.73	18.42	16.06	6.455	2.437
Giza 82	2000	29.33	93.17	39.15	30.56	10.67	13.69	3.645	1.794
	2001	29.56	94.67	38.49	31.84	12.24	13.69	3.700	1.773
Clark	2000	34.72	121.78	47.34	36.74	17.44	16.13	6.709	2.517
	2001	34.78	123.06	47.97	38.32	18.58	15.67	6.517	2.556
Giza 111	2000	34.44	121.11	48.27	35.15	17.76	15.95	6.908	2.628
	2001	34.56	122.00	48.09	36.69	18.86	15.74	6.596	2.556
L.S.D. $_{0.05}$	0.29	0.48	0.64	Ns	Ns	0.14	0.182	0.063	

Table 5: Effect of years x sowing date interaction on seed yield and its components (combined data of 2000 and 2001, seasons).

Sowing date	Year	Days to flowering	Days to maturity	Plant height (cm)	No. of pods/ plant	Seed yield/ plant (g)	100-seed weight (g)	Biological yield (t/ha)	Seed yield (t/ha)
Feb 25	2000	36.60	118.47	42.82	29.66	13.10	15.17	3.676	2.006
	2001	37.20	120.20	42.58	31.63	13.92	14.58	3.545	1.868
Mar. 25	2000	35.13	116.40	43.77	30.66	14.65	15.43	5.609	2.300
	2001	35.13	118.53	43.32	32.77	15.30	15.23	5.348	2.117
Apr.25	2000	32.27	114.80	44.72	35.13	15.55	15.47	6.454	2.383
	2001	32.53	115.33	45.14	35.67	15.87	15.31	6.269	2.428
May 25	2000	31.93	113.67	48.78	39.46	17.57	15.39	7.327	2.735
	2001	32.00	114.07	48.80	40.73	19.25	15.23	7.260	2.807
Jun. 25	2000	31.93	112.33	48.01	40.79	18.98	15.25	6.527	2.522
	2001	31.53	112.80	48.23	41.85	19.54	15.12	6.313	2.637
Jul. 25	2000	31.00	106.20	45.08	27.83	13.69	14.41	5.225	1.929
	2001	30.53	106.53	45.55	29.39	14.01	14.60	5.280	1.947
L.S.D. $_{0.05}$	Ns	0.53	Ns	Ns	0.80	0.15	Ns	0.089	

Table 6: Effect of soybean genotypes x sowing dates interaction on seed yield and its components (combined data of 2000 and 2001 seasons).

Genotype	Sowing date	Days to flowering	Days to maturity	Plant height (cm)	No. of pods/ plant	Seed yield/ plant (g)	100-seed weight (g)	Biological yield (t/ha)	Seed yield (t/ha)
Giza 35	Feb. 25	37.00	116.67	42.87	28.55	10.07	13.87	3.822	1.949
	Mar. 25	35.67	114.00	44.67	30.85	11.38	14.15	4.385	1.951
	Apr. 25	31.33	112.50	45.42	34.00	12.30	14.30	4.782	2.118
	May 25	30.33	111.67	47.83	37.13	17.72	14.33	6.783	2.846
	Jun. 25	31.50	109.33	45.92	37.75	16.97	14.02	6.183	2.625
	Jul 25	30.33	105.33	43.63	26.37	11.35	13.00	4.700	1.607
Crawford	Feb. 25	38.17	126.67	44.65	30.67	15.72	16.03	3.765	2.073
	Mar. 25	36.50	125.83	45.97	32.63	16.72	15.38	6.324	2.425
	Apr. 25	33.50	121.67	47.27	36.48	17.37	16.32	7.283	2.505
	May 25	32.67	121.33	50.17	41.85	19.78	16.20	8.350	2.752
	Jun. 25	33.00	119.67	51.45	44.62	21.07	16.05	7.333	2.730
	Jul 25	31.83	111.33	49.22	30.12	16.45	15.72	6.150	2.165
Giza 82	Feb. 25	32.83	97.33	35.50	28.95	8.67	13.13	2.915	1.391
	Mar. 25	30.17	95.33	36.30	28.43	10.63	13.90	3.263	1.563
	Apr. 25	29.83	95.33	38.33	32.75	11.87	14.08	4.127	2.019
	May 25	28.67	92.00	42.43	37.27	14.30	14.02	4.867	2.351
	Jun. 25	28.00	93.00	41.82	37.20	13.82	13.83	3.717	1.932
	Jul 25	27.17	90.50	33.53	22.58	9.45	13.18	3.147	1.445
Clark	Feb. 25	38.33	128.17	44.87	33.32	16.75	15.85	3.823	2.127
	Mar. 25	36.83	126.33	45.22	33.87	18.25	16.15	6.651	2.581
	Apr. 25	33.67	123.00	46.75	37.75	18.52	16.07	7.568	2.557
	May 25	33.83	122.67	51.20	42.15	19.27	15.97	8.117	2.872
	Jun. 25	33.50	121.17	50.95	44.30	19.28	16.03	7.367	2.607
	Jul 25	32.33	113.17	46.97	33.82	15.98	15.32	6.150	2.273
Giza 111	Feb. 25	38.17	127.83	45.62	31.75	16.35	15.50	3.729	2.143
	Mar. 25	36.50	125.83	45.58	32.80	17.90	16.07	6.770	2.522
	Apr. 25	33.67	122.83	46.88	36.02	18.48	16.18	8.047	2.828
	May 25	33.83	121.67	52.32	42.08	20.97	16.03	8.350	3.033
	Jun. 25	32.67	119.67	50.45	42.72	20.17	15.98	7.500	2.802
	Jul 25	32.17	111.50	48.23	30.15	16.00	15.32	6.117	2.198
L.S.D. 0.05		0.50	0.84	1.10	1.96	1.27	0.24	0.313	0.141

b- Year x sowing date interaction:

The effect of this interaction on seed yield (t/ha), seed yield/plant, 100-seed weight and days to maturity was significant (Table 5). Such characters differed from year to another in each sowing date. In the first season, the highest values of 100-seed weight were observed from April 25, May 25 and June 25 sowing dates. In the second season, the highest values of seed and seed yield/plant were recorded from the same sowing dates.

c- Genotype x sowing date interaction:

The effect of this interaction on all characters under study was significant (Table 6). The highest response of yield components characters to the genotype x sowing date interaction was achieved through growing Giza 111 on May 25. This combination recorded the highest values of seed yield/plant, plant height and biological yield (t/ha). The greatest seed yield (3.03 t/ha) was achieved by combining Giza 111 with sowing on May 25. It could be concluded that Giza 111 is considered a very promising genotype, according to the study period conditions. It is noteworthy that, Clark and Crawford also proved to be adapted genotypes under this conditions, since they came directly after Giza 111 in all characters studied.

Table 7: Effect of soybean genotypes x sowing dates x years interaction on seed yield and its components (combined data of 2000 and 2001, seasons).

Cultivar	Sowing date	Year	Days to flowering	Days to maturity	Plant height (cm)	No. of pods/ plant	Seed yield/ plant (g)	100-seed weight (g)	Biologic al yield (t/ha)	Seed yield (t/ha)
Giza 35	Feb. 25	2000	36.33	116.33	42.30	26.87	9.83	13.97	3.811	1.900
		2001	37.67	117.00	43.43	30.23	10.30	13.77	3.832	1.998
	Mar. 25	2000	35.67	113.33	45.10	29.70	11.33	14.17	4.327	2.040
		2001	35.67	114.67	44.23	32.00	11.43	14.13	4.442	1.861
	Apr. 25	2000	31.33	112.33	45.00	32.57	12.47	14.30	4.800	2.200
		2001	31.33	112.67	45.83	35.43	12.13	14.30	4.763	2.037
	May 25	2000	30.67	111.67	47.73	36.43	17.67	14.37	6.967	2.750
		2001	31.00	111.67	47.93	37.83	17.77	14.30	6.600	2.942
	Jun 25	2000	31.67	109.67	45.87	38.07	16.63	14.17	6.333	2.543
		2001	31.33	109.00	45.97	37.43	17.30	13.87	6.033	2.707
	Jul. 25	2000	31.33	105.33	43.70	26.90	10.83	13.03	4.600	1.830
		2001	29.33	105.33	43.57	25.83	11.87	12.97	4.800	1.585
Crawford	Feb. 25	2000	38.00	125.67	44.23	30.67	15.50	16.43	3.714	2.150
		2001	38.33	127.67	45.07	30.67	15.93	15.63	3.815	1.997
	Mar. 25	2000	36.67	125.00	45.67	30.47	16.77	16.43	6.362	2.417
		2001	36.33	126.67	46.27	34.80	16.67	16.33	6.286	2.433
	Apr. 25	2000	33.33	121.67	46.83	36.93	17.40	16.43	7.470	2.463
		2001	33.67	121.67	47.70	36.03	17.33	16.20	7.097	2.547
	May 25	2000	32.67	121.00	49.97	40.80	19.03	16.27	8.500	2.843
		2001	32.67	121.67	50.37	42.90	20.53	16.13	8.200	2.662
	Jun 25	2000	33.33	119.67	51.60	43.23	18.53	16.00	7.467	2.658
		2001	32.67	119.67	51.30	46.00	21.50	16.10	7.200	2.602
	Jul. 25	2000	32.33	111.33	49.33	30.27	16.37	15.47	6.167	2.147
		2001	31.33	111.33	49.10	29.97	16.53	15.97	6.133	2.183
Giza 82	Feb. 25	2000	32.33	95.00	36.20	27.40	7.80	13.03	3.104	1.585
		2001	33.33	99.67	34.80	30.50	9.53	13.23	2.725	1.197
	Mar. 25	2000	30.00	93.33	37.80	27.77	9.70	13.97	3.238	1.603
		2001	30.33	97.33	34.80	29.10	11.57	13.83	3.289	1.523
	Apr. 25	2000	29.67	95.33	38.23	33.00	11.20	14.10	4.170	2.080
		2001	30.00	95.33	38.43	32.50	12.53	14.07	4.083	1.958
	May 25	2000	28.67	91.33	42.40	37.13	13.43	14.10	4.467	2.167
		2001	28.67	92.33	42.47	37.40	15.17	13.93	5.267	2.535
	Jun 25	2000	28.33	93.33	41.60	36.97	12.43	13.80	3.767	1.802
		2001	27.67	92.67	42.03	37.43	15.20	13.87	3.667	2.063
	Jul. 25	2000	27.00	90.33	38.67	21.07	9.43	13.13	3.127	1.528
		2001	27.33	90.67	38.40	24.10	9.47	13.23	3.167	1.362
Clark	Feb. 25	2000	38.00	127.67	44.83	31.87	16.50	16.43	3.851	2.183
		2001	38.67	128.67	44.90	34.77	17.00	15.27	3.795	2.072
	Mar. 25	2000	37.00	125.33	44.80	33.37	17.93	16.27	6.964	2.767
		2001	36.67	127.33	45.63	34.37	18.57	16.03	6.339	2.395
	Apr. 25	2000	33.33	122.33	46.80	37.60	18.23	16.20	7.670	2.405
		2001	34.00	123.67	46.70	37.90	18.80	15.93	7.467	2.708
	May 25	2000	34.00	122.33	51.43	41.97	18.17	16.13	8.200	2.847
		2001	33.67	123.00	50.97	42.33	20.37	15.80	8.033	2.898
	Jun 25	2000	33.67	120.33	50.87	43.77	17.77	16.47	7.467	2.715
		2001	33.33	122.00	51.03	44.83	20.80	15.60	7.267	2.900
	Jul. 25	2000	32.33	112.67	45.33	31.90	16.03	15.27	6.100	2.185
		2001	32.33	113.67	48.60	35.73	15.93	15.37	6.200	2.362
Giza 111	Feb. 25	2000	38.33	127.67	46.53	31.50	15.87	16.00	3.901	2.212
		2001	38.00	128.00	44.70	32.00	16.83	15.00	3.558	2.075
	Mar. 25	2000	36.33	125.00	45.50	32.00	17.53	16.33	7.154	2.673
		2001	36.67	126.67	45.67	33.60	18.27	15.80	6.385	2.370
	Apr. 25	2000	33.67	122.33	46.73	35.53	18.43	16.30	8.160	2.767
		2001	33.67	123.33	47.03	36.50	18.53	16.07	7.933	2.890
	May 25	2000	33.67	121.67	52.37	40.97	19.53	16.10	8.500	3.070
		2001	34.00	121.67	52.27	43.20	22.40	15.97	8.200	2.997
	Jun 25	2000	32.67	118.67	50.10	41.90	19.43	15.80	7.600	2.890
		2001	32.67	120.67	50.80	43.53	20.90	16.17	7.400	2.713
	Jul. 25	2000	32.00	111.33	48.37	29.00	15.77	15.17	6.133	2.155
		2001	32.33	111.67	48.10	31.30	16.23	15.47	6.100	2.242
L.S.D. 0.05			0.71	1.19	1.56	2.79	1.81	0.34	0.446	0.201

d- Genotype x sowing date x year interaction:

The effect of this interaction on all characters under study was significant (Table 7). Giza 111 produced maximum yields (t/ha), when planted on May 25 in 2000. Similarly Crawford recorded its greatest yields in the first season. However, Clark, Giza 35 and Giza 82 gave their maximum seed yield when sown on May 25 in the second season. In 2001 season, Giza 111 produced the largest seed weight per plant when planted on May 25 followed by Crawford and Clark planted on June 25. The highest number of pods per plant was obtained from Crawford when planted on June in the second season followed by Clark and Giza 111. The lowest number of pods was produced from Giza 82 planted in June in the first season . Clark produced the heaviest 100-seed weight in 2000 season when planted in June 25 followed by Crawford and Giza 111 when planted on April 25. Giza 35 and Giza 82 produced their greatest 100-seed weight when planted on May 25 in the first season. In 2000 season, Giza 111 was the tallest genotype when planted on May 25 followed by Clark planted on May 25 in the second season, whereas Giza 82 was the shortest genotype in both seasons.

To sum up, it is obvious that seed yield was reduced when sowing took place either after June 25 or before April 25. The sowing date of May 25 had recorded the highest values of seed yield (t/ha). Giza 111 and Clark produced nearly the same yield. The greatest seed yield (2.6 t/ha) was achieved by combining Giza 111 with sowing on May 25. It may be concluded that Giza 111 is considered a very promising genotype, according to the study period conditions. It is noteworthy that, Clark and Crawford also proved to be adapted genotypes under this conditions, since they came directly after Giza 111 in all characters studied.

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سلوك بعض التراكيب الوراثية من فول الصويا تحت مواعيد زراعة مختلفة بالمملكة العربية السعودية

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أقيمت تجربة حقلية فى ارض رملية طمية بمحطة البحوث الزراعية بديراب -كلية الزراعة- جامعة الملك سعود- الرياض- المملكة العربية السعودية وذلك خلال الموسمين الزراعيين ٢٠٠٠، ٢٠٠١ لدراسة تأثير ستة مواعيد زراعة (٢٥ فبراير، ٢٥ مارس، ٢٥ أبريل، ٢٥ مايو، ٢٥ يونيه، ٢٥ يوليو) على المحصول ومكوناته لبعض التراكيب الوراثية وهى جيزة ٣٥، كراوفورد، جيزة ٨٢، كلارك، جيزة ١١١.

أعطى الصنف جيزة ١١١ أعلى قيمة من محصول البذور (٢,٦ طن/هكتار) مسجلا زيادة قدرها ٢، ٦، ١٨، ٤٥ % مقارنة بالأصناف كلارك، كراوفورد، جيزة ٣٥، جيزة ٨٢ على الترتيب.

وقد أعطت الزراعة فى ٢٥ مايو أعلى القيم من محصول البذور للهكتار حيث سجلت زيادة معنوية فى المحصول بلغت ٧، ١٥، ٢٥، ٤٢، ٤٣ % مقارنة بمواعيد الزراعة ٢٥ يونيه، ٢٥ أبريل، ٢٥ مارس، ٢٥ يوليو، ٢٥ فبراير على التوالى.

وتشير النتائج أن أعلى محصول من البذور يمكن الحصول عليه عند الزراعة فى الفترة من ٢٥ أبريل حتى ٢٥ مايو وذلك ربما يرجع إلى أن الظروف المناخية فى هذه الفترة ملائمة لزراعة فول الصويا.

ولقد أظهرت النتائج أن الأصناف جيزة ١١١، كلارك، كراوفورد تعتبر من الأصناف الواعدة التى يمكن زراعتها بنجاح خلال الموسم الصيفى بمنطقة الرياض (المنطقة الوسطى).