

(*Helianthus annuus* L.)

*

2006 2005
 / 10 5 () } :
 3 { / (%17) 1.6 1
 () :
 / 1.6 / 5
 1.6 / 5
 2006 2005 / 3.62 3.61 / 3.34 3.43 /
 1.76 1.66 / 5 /
 (1999) Sharma / 34 .1
 / 0.5
 Blamely (1997)
 (2001) / 150 .(1980 Fleming)
 100 /
 10.25 1265 () ()
 / 300 Blamey .(1982 Kirkby Mengel)
 (1979)
 2 8223 / 1.65 %39.7 (2 /)
 / 450 %48
 %94.2 19.12
 Renukadevi / 4.22 *
 2 (2003) 2008/1/21 .
 .2009/3/30

6.7 1221.8 18.1 /
 / 1.74 / 3.93 %92.6 100
 (2001)
 /
 100

(1)

2006 2005

2006		2005			
()					
		60 -30	30-		
		550	570	(/)	
		210	240	(/)	
180	160	240	190	(/)	
12.7	18.5	10.3	16.5	(/)	
20.4	32.1	24.7	39.3	(/)	
8.4	13.6	8.7	12.9	(/)	
116	124	122	137	(/)	
2.7	3.2	3.1	3.7	(/)	
169	184	153	179	(/)	
7.4	7.5	7.2	7.3	PH	
1.2	1.4	1.5	1.8	(/)	

2006 2005 28 27 .2
 30) / 55.6
 (60 2006 2005
 3 :

/ 80 (N %46) / (%17)

Peredovik Koban :

/ 160
 (P2O5 %48)

.Iraqi flower

(K2O %48)

/ 200

8

16

%50

1 3

.() 2006 2005
 (1986) Klute
 .(1988)
 / (1982) Page (1965) Black
 (2)
 / 1.6 0.5 M
 %19.2 Flame PH 8.5 NaHCO3
 2005 Agomethine Photometer
 1 / 10 / 5 Azomethine-H
 / 1.6 / EC PH PH
 %27.7 23.9 29.7 23.4 2006
 .(1)
 .(1) () :
 () /
 / 5 (1994)100× =
 %24.6 22.9
 2006 2005 (/)
 (1985) (1980 AOAC) Soxhlet
 × % = (/)
 : (/)
 / 19.6 13.6
 (2) 19.7 15 2005 36.5 37.4 30.5 25.6
 / 10 5 2006 36.3 37.6 33.5 25.3
 2005 / 1.6 3.2 3.7 17.4 20.5
 1.6 5.1 94.7 21.9 2005
 2006 /) 2006
 .(1989)) %5 1
 5 (1980
 1.6 / .(1996 Payne Lane) Genstat for windows
 31.6 %30.6 30.2 /
 2006 2005 %32.5 .3
 .
 -1
 (2) :
 .(2001)
 / 5
 2006 2005 %47.5 46.2 %3.7 3.6 / 1.6
 2006 %5.7 4.1 2005

2005 (Loof, 1960)
 / 1.43 / 5 5
 2006 1.6 /
 / 1.34 1.37 /

(2)

*2006 2005

2006					2005					
(/)		(/)			(/)		(/)			
1.6	1	10	5		1.6	1	10	5		
20.5	19.9	20.0	20.2	19.4	20.53	20.15	20.11	20.51	19.8	()
1041	1011	1057	1006	815	1055	1005	993	972	885	/
74.8	73.7	75.1	75.9	60.9	72.1	69.7	71.9	75.2	61.2	()
87.4	85.9	86.5	86.9	84.6	87.8	86.3	87.3	86.9	85.3	(%)
3.1	2.8	2.9	3.1	2.4	3.0	2.8	2.9	3.0	2.3	(/)
42.8	43.9	44.8	45.8	47.5	44.2	45.2	44.5	45.2	46.2	(%)
1.34	1.23	1.30	1.43	1.14	1.34	1.28	1.29	1.37	1.08	(/)

.%5 1

*

-2

:

2005 Tanimu)
 .2006 (3) (1994)
 2005 21.6 21.3
 () / 2006
 () / .(2002)

27.6 / 3.41 3.19 (2002) 2006 2005
 2005 %39.2 2006 %87.8 88.4 2006 2005

(3)

*2006 2005

2006			2005			
18.1	21.6	20.3	18.5	21.3	20.9	()
981	1034	975	986	997	991	/
66.1	86.8	63.3	67.7	76.8	65.5	()
85.0	87.8	86.1	84.8	88.4	87.0	(%)
2.5	3.4	2.7	2.5	3.2	2.8	(/)
43.4	47.3	44.2	42.8	48.2	44.3	(%)
1.06	1.61	1.20	1.06	1.53	1.22	(/)

.%5 1

*

-3 / 48.2 2006 2005 %47.3
 : (5) (4) (2001) 2006 2005
 / 1.6 (2002) 21.9 (2002)
 1.53 / 2006 2005 / 1.61

(4)

*2005

(/)	(%)	(/)	(%)	()	/	()			
1.01	45.8	2.2	85.2	59.7	892	20.4			
1.28	44.1	2.9	88.2	71.0	- 1018	21.6		/ 5	
1.22	43.6	2.8	87.7	66.7	1043	20.6		/ 10	
1.30	44.3	2.9	86.7	63.7	- 955	20.8		/ 1	
1.31	43.7	3.0	87.4	66.7	1049	- 21.2		/ 1.6	
1.38	49.2	2.8	87.8	63.0	918	20.8			
1.66	48.4	3.4	87.9	84.7	- 984	- 21.5		/ 5	
1.57	47.7	3.3	88.6	78.7	- 999	21.1		/ 10	
1.48	48.3	3.1	87.7	77.3	- 1030	- 21.2		/ 1	
1.57	47.1	3.3	89.8	80.3	1052	21.9		/ 1.6	
0.85	43.7	2.0	82.9	61.0	846	18.2			
1.17	43.1	2.7	84.6	70.0	915	18.5		/ 5	
1.08	42.1	2.6	85.7	70.3	937	18.6		/ 10	
1.06	43.0	2.5	84.4	68.0	- 1032	18.5		/ 1	
1.16	42.0	2.8	86.1	- 69.3	1064	18.5		/ 1.6	

.%5 1

*

84.7

/ 5

/
(2001)

2006 2005

93.3

(5) (4)

2006

%50.4

2006

2005

%90.2

/ 1.6

/ 1.76 1.66

/ 5

2006 2005

/ 5

-4

/ 1.6

(6)

:

3.62 3.61 2005

/ 3.34 3.43

2006

/

(5)

*2006

(/)	(%)	(/)	(%)	()	/	()			
1.03	47.4	2.2	84.3	58.7	- 850	19.7			
1.30	44.6	2.9	88.1	69.7	- 961	21.1		/ 5	
1.19	- 43.9	2.7	- 86.5	- 63.7	1110	20.1		/ 10	
1.24	43.2	2.9	85.8	61.7	- 933	20.0		/ 1	
1.25	41.9	3.0	- 86.1	63.0	- 1021	20.8		/ 1.6	
1.57	50.4	3.1	- 86.4	65.7	- 919	- 21.3			
1.76	48.9	3.6	87.2	93.3	- 1037	21.8		/ 5	
1.59	46.9	3.4	88.1	90.3	- 1012	21.6		/ 10	
1.52	45.8	3.3	86.9	92.7	- 1064	- 21.3		/ 1	
1.61	44.5	3.6	90.2	92.0	1138	21.9		/ 1.6	
0.81	44.9	1.8	83.3	58.3	829	17.2			
1.24	- 43.8	2.8	85.6	- 64.7	- 1021	17.9		/ 5	
1.12	- 43.5	2.6	85.1	71.3	- 1052	18.4		/ 10	
0.95	42.6	2.2	85.0	66.7	- 1037	18.3		/ 1	
1.17	42.0	2.8	- 86.0	69.3	- 965	18.7		/ 1.6	

.%5 1

*

(6)

*

2006	2005	
20.0	20.2	()
997	982	/
72.1	70.0	()
86.3	86.7	(%)
2.9	2.8	(/)
44.9	45.1	(%)
1.29	1.27	(/)

.%5 1

*

2.87	72.1	2006	2006	2005
	% 1.8 3.0	/	2005	(1)
		2005		(1989)
(1)		(6)	/	2005

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Effect of Boron Fertilization on Growth, Yield and Quality of Some Sunflower Cultivars (*Helianthus annuus* L.)

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ABSTRACT

A field experiment on sunflower was conducted during the growing seasons of 2005 and 2006 at Al-Quba field-Mosul city to determine the effect of boron {0.0 (control), 5 and 10 B mg.l⁻¹ sprayed on the leaves, 1 and 1.6kg Boric acid ha⁻¹ added to the soil} on growth, yield and quality of three sunflower cultivars (coban, peredovik and Iraqi flower). Randomized complete block design with three replications was used. The results showed that 5mg L⁻¹ Boron spraying on leave plants or adding Boric acid at level 1.6kg ha⁻¹ had a significant superiority on head diameter, weight of 1000 seeds, fertility percentage, seed and oil yield for both seasons. Peredovik variety was superior for most yield components and quality. The interaction of peredovik variety with boron (5 mg l⁻¹ spraying or with 1.6 kg ha⁻¹ adding to the soil) gave a high value on seed yield, which increased up to 3.43, 3.34 ton ha⁻¹ in 2005 and up to 3.61,3.62 ton ha⁻¹ in 2006. Maximum oil yield had seen at interaction between peredovik variety with boron spraying (5 mg l⁻¹) for both seasons.

Keywords: Sun Flower, Boron, Cultivars, Seed and Oil Yield.

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