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EFFECT OF SOME WEED CONTROL TREATMENTS AND NITROGEN FERTILIZER LEVELS ON YIELD AND QUALITY OF SUGAR BEET CROP UNDER NEWLY RECLAIMED LANDS

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ABSTRACT

Two field trials were carried out in 2004/2005 and 2005/2006 growing seasons at the Experimental Farm of the Faculty of Agriculture, Sohag, South Valley University. This work aimed to find out the effect of nitrogen levels (50, 75 and 100 kg N/fed.) and some weed control treatments formed of herbicidal treatment, hand hoeing and/or their combinations (Hand hoeing twice, Fusilade Super, Select Super, Fusilade super+ hand hoeing once, Select Super +Hand hoeing once and un-weeded) on yield, yield components and quality of sugar beet (multi-germ cultivar Kawmera) in newly reclaimed lands.

The obtained results showed that root diameter, root fresh weight, leaves fresh weight, root yield, top yield, sugar yield and T.S.S. % Increased significantly with increase nitrogen levels. Also, increasing nitrogen level from 50 to 100 kg/fed. significantly increased the dry weight of weeds, while sucrose% and purity % were not affected by nitrogen levels.

All weed control treatments reduced the dry weight of narrow and broad leaved weeds and dry weight of total weeds, whereas increased all above beet traits compared with un-weeded. The best treatments for sugar beet yield and quality were high level of nitrogen (100 kg /fed) and hand hoeing twice at 21 and 51 days after sowing.

INTRODUCTION

Sugar beet (*Beta vulgaris* L.) is an important crop in Egypt and all over the world. It is the second crop after sugar cane in Egypt for sugar production; as it can be grown in northern regions of the country in the new reclaimed area. Recently, the contribution of sugar beet to sugar production increased to reach 27% of the total sugar production in season 2003. Sugar beet is cultivated in 140.9 thousand feddan. High yield and quality of sugar beet is the end-product of many factors including nitrogen fertilizer and weed control treatments. Nitrogen has a role in the formation of proteins, where it is an integral part of chlorophyll, needed to absorber solar energy during photosynthesis. Many investigators proved that sugar beet yield and quality are greatly affected by the applied levels of nitrogen. Azzazy (1998), Ibrahim (1998), Sarhan (1998), Shalaby (1998), Basha (1999), El-Shafei (2000) and Mokadem (2000) found that the increasing levels of nitrogen caused increased of root length, root diameter, root fresh weight/plant, root and sugar yields/fed, while TSS %, sucrose and purity percentages gradually decreased as N-level increased. Sohier (2000, 2001 and 2002) and Ismail (2002) indicated that root length, diameter and fresh weight/plant root, top and sugar yields increased by increasing nitrogen fertilizer, while purity, sucrose and TSS % were affected by nitrogen fertilizer level. Nafel (2004) found that root

length and TSS% were significantly increased as N level was raised up to 80 kg N/fed, but sucrose percentage was decreased.

Martnovich and Radzivi (1985) reported that herbicides had no effect on root and sugar yields of sugar beet. Rost (1991) found that the quality of sugar beet root was not affected by any herbicide application. Povilarris *et al* (1992) found that all weed control treatments increased sugar beet root yield. Abd El-Aal (1995) noticed that hand hoeing 4 times produced the highest sugar and root yields. Bensellam *et al* (1997) stated that hoeing twice during the growing season was sufficient to provide good weed control, crop growth development and yield components, compared to the other chemical control treatments. El-Geddawy *et al* (2001) reported that hoeing number had no significant effect on root length and diameter, quality characters. They reported that increasing hoeing number to three times produce a relative advantage in the values of root and sugar yields. Wiltshire *et al* (2003) found that use of the guided hoe controlled weeds better than overall chemical weed control. Ali (2005) found that application of Select super + one hand hoeing resulted significant reduction in dry weight of narrow-leaved weeds, while hand hoeing three times gave significant reduction in dry weight of broad-leaved and total weeds. Using hoeing treatment had significant effect on all studied traits of yield and yield components. This work aims to investigate the effect of some nitrogen fertilizer levels and weed control treatments on yield, yield components and quality of sugar beet in newly reclaimed lands under Sohag Governorate conditions.

MATERIALS AND METHODS

Two field experiments were carried out at the Eperimental From Of the Faculty of Agriculture, Sohag, South Valley University during 2004/2005 and 2005/2006 seasons. This work aimed to find out the effect of some weed control treatments and nitrogen fertilizer levels on weeds yield, yield components and quality of sugar beet (multi-germ cultivar Kawmera) in newly reclaimed lands of Sohag Governorate. Split-plot design in four replications was used in this study. The main plots were assigned to three nitrogen fertilizer levels 50, 75 and 100 kg N/fed., while the six weed control treatments were assigned in sub- plots.

Weed control treatments were:1-Hand hoeing twice at 21 and 51 days from sowing.2- Fusilade super 12.5% E.C (Fluazifop-butyl) herbicide at a rate of 0.5 liter/fed 3- Select super 12.5% E.C (Clethodim) herbicide at a rate of 0.5 liter/fed.4- Fusilade super 12.5% E.C (Fluazifop-butyl) herbicide at a rate of 0.5 liter/fed plus one hand hoeing after 36 days after sowing.5- Select super 12.5% E.C (Clethodim) herbicide at a rate of 0.5 liter/fed plus one hand hoeing after 36 days after sowing. 6. Un-weeded. Herbicidal treatments were applid with aknabsac sprayer with 200L./Fed water volume at 21days from sowing.

Each sub- plot consisted of 5 rows of 3.5 m long and 60 cm apart. The area of each sub- plot was 10.5 m^2 . Seed- balls were hand sown as the usual dry method of sowing on one side of ridges at space of 20 cm between hills at the 15th of November in both seasons. The experimental soil was loamy sand in texture with pH value of 7.7, organic matter content of 1.5%,

total N 0.55%, available P and K of 7.2, 155.3 ppm, respectively. The preceding crop was wheat and fallow in the summer in both seasons. Mineral nitrogen was applied as urea (46.5% N) in three equal doses after 30,45 and 60 days from planting. Phosphorus fertilizer was added at recommended rate of 30 kg P_2O_5/fed at planting. Potassium was added at recommended rate of 24 kg K_2O/fed after thinning.

Data recorded:

Weed survey; weeds were hand pulled from one square meter chosen at random in each plot after 90 days from sowing. Weeds were air-dry for seven days, then dried in oven at 70 C° for 24 hours until a constant weight. Weeds were identified ,and classified to, broad and narrow- leaved weeds dry weight in grams/m^2 of each weed groups were recorded for narrow leaved weeds, broac leaved weeds and total dry weight of weeds. The dominant weed species counted in the experimental plots in both seasons were as shown in Table 1.

Table 1: Family, scientific and common name for weeds accompanied sugar beet crop in the experimental site during 2004/2005 and 2005/2006 seasons, survey in Sohag Governorate.

Weeds type	Scientific name	Common name	Family
Broad leaved	*Malva parviflora* L.	Little mallow	Malvaceae
	Melilotus indica L.	Sweet clover	Fabeaceae
	Medicago polymorpha L.	Black medic	Fabeaceae
	Ammi majus L.	Tooth Pick	Umbelliferae
	Plantago major L.	Plaantain	plantaginaceae
	Sonchus oleraceus L.	Sowthitle	Compositeae
	Chenopodium album	Commom lamb squarters	Chenopodiaceae
Narrow leaved	*Avena fatua* L.	Wild oat	Poaceae
	Lolium temulentum L.	Ryegrss	Poaceae

Sugar beet yield and quality: At harvest, a random sample of 10 sugar beet plants was taken from each sub plot to determine root diameter (cm), fresh weight of root and leaves/plant (g). In addition, top and root yield (ton/fed.) were estimated on plot basis. Quality traits included total soluble solids percentage (TSS %)determined using hand referactometer, sucrose % was determined as described by Le Docte (1927), purity % was calculated as; purity % = sucrose % x 100 / TSS% and sugar yield (ton/fed.) was calculated as; sugar yield = root yield x sucrose % x purity %.

Data were subjected to analysis of variance as described by Gomez and Gomez (1984), using MSTAT-Computer V4 (1986). Least significant difference (LSD) test at 0.05 level was used to compare between means of treatments.

RESULTS AND DISCUSSIONS

I-Effect of nitrogen levels on:

a-Weeds:

Data in Table 2 revealed that nitrogen levels affected significantly dry weight of narrow leaved weeds, dry weight of broad leaved weeds and dry weight of total weeds (g/m^2) in both seasons. The nitrogen level at 50 kg

N/fed. decreased significantly all above treats compared with nitrogen levels at 75 and 100 kg N/fed.

Table 2: Effect of nitrogen levels and weed control treatments on dry weight of narrow and broad-leaved, weeds and total weeds (g/m^2) at 90 days from sowing.

Treatments	dry weight of narrow leaved weeds(g/m^2)		dry weight of broad leaved weeds(g/m^2)		dry weight of total weeds(g/m^2)	
	2004/ 2005	2005/ 2006	2004/ 2005	2005/ 2006	2004/ 2005	2005/ 2006
Nitrogen levels(kg/fed)						
50	88.6	113.3	324.0	314.6	412.6	427.9
75	102.0	123.0	350.6	336.3	452.5	459.3
100	116.3	126.3	377.6	365.3	494.0	491.5
L.S.D at 5%	*13.1*	*12.8*	*38.8*	*30.5*	*38.7*	*35.4*
Weed control						
Hand hoeing twice	10.9	20.8	17.9	19.9	28.8	40.7
Fusillade super	32.5	33.2	513.3	511.4	545.8	544.6
Select super	32.3	35.9	592.6	588.0	624.9	623.9
Fusillade +hand hoeing once	18.4	16.4	156.8	145.2	175.2	161.6
Select + hand hoeing once	17.9	16.0	185.0	157.0	202.9	173
Un-weeded (control)	501.6	602.7	639.4	610.8	1141	1213.5
L.S.D at 5%	*11.7*	*15.8*	*37.1*	*19.6*	*38.9*	*50.6*

b-Yield components:

The data in Table 3 reveled that the root diameter, root fresh weight and leaves fresh weight per plant were increased significantly and consistently with increasing rates of N fertilizer in both seasons. The high level of nitrogen (100 kg N/fed.) increased root diameter by 40.3 and 65.1%, root fresh weight by 14.3 and 24.6 % and leaves fresn weight by 31.7 and 26.2% compared with 50 kg N/fed. in the first and second seasons, respectively. These results might be attributed to the stimulating effect of nitrogen on the meristematic capacity of plants. The increment in yield attributes with increasing rates of nitrogen was in agreement with results obtained by several investigators (Azzazy 1998, Ibrahim 1998, Sarhan 1998, Shalaby 1998, Basha 1999, El-Shafei 2000, Mokadem 2000and Ismail 2002).

c-Yield:

Data in Table 4 show the effect of nitrogen fertilizer and weed control treatments on top yield, root yield and sugar yield kg/fed. It is clearly evident that over weed control treatments increasing nitrogen levels from 50 to 100 kg/fed. increased significantly and consistently top, root and sugar yields /fed. Raising N level to 75 and 100 kg/fed. resulted in ascendant increase in the produced root yield/fed. amount to1.81 and 4.94 tons in the 1st and 2.66 and 4.64 tons in the 2nd season, respectively compared to applying 50 kg N/fed. The increase in yield as affected by N levels is probably due to the increase in root diameter and root weight per plant (Table 3) which could be attributed to the role of nitrogen element in building up plant organs and enhancing its growth. Similar results were found by Azzazy (1998), Ibrahim (1998), Sarhan (1998), Shalaby (1998), Basha (1999), El-Shafei (2000), Mokadem (2000) and Ismail (2002).

Table 3: Effect of nitrogen levels and weed control treatments on root diameter (cm), root fresh weight (g)/plant and leaves fresh weight (g)/plant of sugar beet.

Treatments	Root diameter (cm)		Root fresh weight (g)		Leaves fresh weight (g)	
	2004/ 2005	2005/ 2006	2004/ 2005	2005/ 2006	2004/ 2005	2005/ 2006
Nitrogen levels(kg/fed)						
50	6.31	5.38	583	586	413	374
75	7.98	7.73	631	697	468	433
100	8.85	8.91	679	719	544	470
L.S.D at 5%	*0.48*	*0.46*	*25*	*18*	*54*	*24*
Weed control treatments						
Hand hoeing twice	8.84	9.27	818	848	655	546
Fusillade super	7.55	6.87	609	615	408	397
Select super	7.22	6.56	550	585	396	367
Fusillade +hand hoeing once	7.81	7.91	673	706	536	507
Select + hand hoeing once	8.02	7.39	645	660	545	461
Un-weeded (control)	6.49	6.03	491	501	312	276
L.S.D at 5%	*0.40*	*0.42*	*41*	*13*	*25*	*18*

Table 4: Effect of nitrogen levels and weed control treatments on top yield (ton/fed), root yield (ton/fed) and sugar yield (ton/fed) of sugar beet.

Treatments	Top yield (ton/fed)		Root yield (ton/fed)		sugar yield (ton/fed)	
	2004/ 2005	2005/ 2006	2004/ 2005	2005/ 2006	2004/ 2005	2005/ 2006
Nitrogen levels(kg/fed)						
50	8.34	7.86	17.17	17.39	1.952	1.954
75	9.01	8.71	19.98	20.05	2.373	2.395
100	10.13	9.20	22.11	22.03	2.817	2.823
L.S.D at 5%	*0.78*	*0.43*	*0.72*	*1.32*	*0.13*	*0.19*
Weed control						
Hand hoeing twice	12.05	10.43	25.18	23.94	3.363	3.243
Fusillade super	8.12	8.02	18.42	19.12	2.113	2.280
Select super	7.78	7.74	17.69	18.50	2.048	2.101
Fusillade +hand hoeing once	9.96	9.31	20.53	20.66	2.559	2.641
Select + hand hoeing once	10.25	9.25	20.08	20.02	2.385	2.210
Un-weeded (control)	6.80	6.79	16.63	16.69	1.817	1.867
L.S.D at 5%	*0.48*	*0.44*	*1.26*	*0.61*	*0.09*	*0.10*

d-Juice quality:

The averages of total soluble solids %, sucrose % and purity % as affected by nitrogen levels and weed control treatments in 2004/2005 and 2005/2006 seasons are given in Table 5. It is evident that, the nitrogen levels did not affect significantly sucrose % and purity % in both seasons, while total soluble solids % (T.S.S) was significant by affected in the two seasons. Nitrogen at,100 kg N/fed and 75 kg N/fed recorded the highest total soluble solids without significant differences between them and both treatments were significantly superior in this respect comparing with 50 kg N/fed in both seasons. These results are in agreement with Ibrahim (1998), Basha (1999), Ismail (2002) and Nafei (2004).

Table 5: Effect of nitrogen levels and weed control treatments on total soluble solids (T.S.S) %, Sucrose% and Purity% of sugar beet.

Treatments	T.S.S%		Sucrose%		Purity%	
	2004/ 2005	2005/ 2006	2004/ 2005	2005/ 2006	2004/ 2005	2005/ 2006
Nitrogen levels(kg/fed)						
50	19.24	20.32	14.66	14.55	74.66	70.26
75	20.08	21.76	15.01	15.14	74.77	70.93
100	20.63	21.91	15.56	15.75	76.33	73.04
L.S.D at 5%	*0.80*	*0.50*	*NS*	*NS*	*NS*	*NS*
Weed control						
Hand hoeing twice	21.30	22.38	16.36	16.54	76.84	73.90
Fusillade super	19.56	21.09	14.45	14.19	73.88	70.65
Select super	19.51	20.66	14.54	14.35	74.50	69.43
Fusillade +hand hoeing once	20.11	21.52	15.49	15.77	77.01	73.25
Select + hand hoeing once	20.54	21.07	15.62	15.16	76.06	71.91
Un- weeded (control)	18.87	20.47	13.94	14.19	73.90	69.34
L.S.D at 5%	*0.36*	*0.38*	*0.28*	*0.36*	*2.01*	*1.98*

II-Effect of weed control treatments on:

a-Weeds:

All weed control treatments gave significantly reduction on the dry weight of narrow leaved weeds, dry weight of broad leaved weeds and dry weight of total weeds (g/m^2) in both seasons(Table2). The hand hoeing twice times gave the highest reduction in the dry weight of existed weeds and decreased the dry weights of narrow leaved weeds, broad leaved weeds and total weeds by 97.8, 97.2 and 97.6% in the first season and by 99.2, 96.7 and 97.8% in the second season compared with un-weeded treatment, respectively. The application of Fusillade super, select super, Fusillade supe+hand hoeing once and Select super + hand hoeing once decreased the dry weight of total weeds by 52.5,45.5, 84.4 and 82.0% in the first season and by 57.6, 51.2, 87.7 and 86.8% in the second season compared with un-weeded treatment, respectively meaningly, that integration between hand-hoeing with either Fusillade super or select super is necessary to obtain apromising weed control results in sugar beet fields.These results were consistence with those obtained by Bensellam *et al* (1997), Wiltshire *et al* (2003) and Ali (2005).

b-Yield components:

Concerning the effect of chemical and mechanical weed control treatments, data in Table 3 show that root diameter, root fresh weight and leaves fresh weight per plant were significantly affected in both seasons. Hand hoeing twice was the potent treatment in this respect and increased root diameter, root fresh weight and leaves fresh weight were by 29.4 and 53.7%, 66.6 and 69.3% and 109.0 and 97.8% compared to un-weeded treatment in the first and second seasons, respectively. These increases might be due to preventing competition of weeds. Similar results were found by Povilarris *et al* (1992), Bensellam *et al* (1997), Wiltshire *et al* (2003) and Ali (2005). On the other hand El-Geddawy *et al* (2001) reported that hoeing number had no significant effect on root length and diameter

c-Yield:

The effect of chemical and mechanical weed control treatments on root, top and sugar yields were significant in both seasons (Table 4). In the first season using of hand hoeing twice, Fusillade + hand hoeing once, Select +

hand hoeing once, Fusillade and Select increased of root yield/fed. by 8.55, 3.90, 3.45, 1.79 and 1.06 tons/fed., respectively and 7.25, 3.97, 3.33, 2.43 and 1.81 tons , respectively in the second season compared to un-weeded treatment. This may be attributed to decreasing the competition between sugar beet plants and weeds and consequently increasing the accumulation of assimilates in sugar beet plants. Similar results were found by Abd El-Aal (1995), Wiltshire *et al* (2003) and Ali (2005). On contrary, Martnovich and Radzivi (1985) reported that herbicides had no effect on root and sugar yields of sugar beet.

d-Juice quality:

Also, the data illustrated in Table 5 indicate clearly that total soluble solids %(T.S.S), sucrose % and purity % were increased significantly with weed control treatments compared with control. Hand hoeing twice gave the best values of these traits in both seasons. Hand hoeing twice in the first season increased total soluble solids %, sucrose % and purity %to be 21.30%,16.36%,and76.84% compared with 18.87%, 13.94%and73.90%for the unweeded treatment ,respectively.Analogus values for the same respective traits in the 2nd season were 22.38%,16.54%,and73.90% comparing with 20.47%,14.19%and 69.34%for the cotrol. On the other hand Rost (1991) found that the quality of sugar beet root was not affected by any herbicide application.

III-Interaction effect between nitrogen levels and weed control treatments on:

a-Weeds:

The interaction between nitrogen levels and weed control treatments had a significant effect on the dry weight of narrow leaved weeds, dry weight of broad leaved weeds and dry weight of total weeds (g/m^2) in both seasons. Hand hoeing twice times and nitrogen levels at 50 kg N/fed. gave the highest reduction values for these treats in both seasons (Table 6).

b-Yield components:

Data in Table 6 show that the interaction effect between nitrogen levels and weed control treatments was not significant on root diameter in both seasons, which means that these factors acts independently from each other. While, it significant for root fresh weight/plant and leaves fresh weight/plant. The highest value of root fresh weight/plant in two seasons (910 and 941 g/plant) and leaves fresh weight/plant (678 and 606 g/plant) were obtained when applying to sugar beet 100 kg N/fed. and hand hoeing twice, while the lowest value from these treats (439 and 420 g/plant) and (227 and 233 g/plant) in the two seasons were obtained when applying to sugar beet 50 kg N/fed. and un-weeded.

c-Yield:

Data presented in Table 7 show that the interaction between nitrogen levels and weed control treatments had a significant impact on top, root and sugar yields in both seasons. The highest top, root and sugar yields (12.27,28.19 and 3.980 tons/fed in the first season, respectively and 10.71, 27.17 and 3.874 tons/fed in the second season, respectively) were obtained when applied 100 kg N and hand hoeing twice.

Table 6: Effect of the interactions between nitrogen levels and weed control on dry weight of weeds and yield components of sugar beet.

Nitrogen levels (kg/fed)	Weed control	Dry weight of weeds (g/m²)						yield components of sugar beet					
		Narrow leaved		Broad leaved		Total		Root diameter (cm)		Root fresh weight (g)		Leaves fresh weight (g)	
		2004/ 2005	2005/ 2006	2004/ 2005	2005/ 2006	2004/ 2005	2005/ 2006	2004/ 2005	2005/ 2006	2004/ 2005	2005/ 2006	2004/ 2005	2005/ 2006
50	Hand hoeing twice	5.7	19.7	8.7	12.0	14.4	31.7	7.33	6.92	731	766	611	478
	Fusillade super	26.4	32.9	518.0	536.0	544.4	568.9	6.17	5.00	577	560	334	345
	Select super	19.7	32.5	534.0	502.0	553.7	534.5	5.90	4.56	515	540	330	326
	Fusillade +hand hoeing once	6.3	15.4	130.7	129.3	137	144.7	6.70	6.16	635	634	477	454
	Select + hand hoeing once	6.5	16.4	168.0	144.7	174.5	161.1	6.57	5.22	603	598	501	409
	Un-weeded	466.7	564.7	584.7	563.3	1051.4	1128	5.17	4.38	439	420	227	233
75	Hand hoeing twice	13.3	20.7	19.7	18.3	33	39	8.94	9.53	813	837	677	553
	Fusillade super	33.5	28.7	518.0	491.3	551.5	520	7.97	7.34	608	611	375	402
	Select super	34.5	33.0	607.3	601.0	641.8	634	7.62	7.02	543	582	364	360
	Fusillade +hand hoeing once	23.7	20.0	140.7	141.0	164.4	161	8.16	8.14	643	677	523	513
	Select + hand hoeing once	21.7	20.2	187.0	160.7	208.7	180.9	7.90	7.92	674	697	575	497
	Un-weeded	485.3	615.3	630.7	605.7	1116	1221	7.26	6.44	505	509	297	270
100	Hand hoeing twice	13.7	22.0	25.3	29.3	39	51.3	10.25	11.37	910	941	678	606
	Fusillade super	37.7	38.1	504.0	507.0	541.7	545.1	8.50	8.25	642	672	515	443
	Select super	42.7	42.2	636.3	661.0	679	703.2	8.15	8.11	593	633	493	415
	Fusillade +hand hoeing once	25.3	13.8	199.0	165.3	224.3	179.1	8.57	9.44	741	807	608	555
	Select + hand hoeing once	25.5	13.4	200.0	165.7	225.5	179.1	7.59	9.02	659	685	560	478
	Un-weeded	552.7	628.0	703.0	663.3	1255.7	1291.3	7.05	7.25	530	575	411	325
L.S.D at 5%		*20.3*	*20.3*	*33.9*	*64.3*	*79.3*	*67.5*	*NS*	*NS*	*26*	*15*	*52*	*20*

Table 7: Effect of the interactions between nitrogen levels and weed control on yield and quality of sugar beet.

Nitrogen levels (kg/fed)	Weed control	Yield						Quality					
		Top yield (ton/fed)		Root yield (ton/fed)		sugar yield (ton/fed)		T.S.S%		Sucrose%		Purity%	
		2004/ 2005	2005/ 2006	2004/ 2005	2005/ 2006	2004/ 2005	2005/ 2006	2004/ 2005	2005/ 2006	2004/ 2005	2005/ 2006	2004/ 2005	2005/ 2006
50	Hand hoeing twic	11.63	10.37	22.34	20.99	2.813	2.619	20.63	21.53	15.66	15.54	75.92	72.16
	Fusillade super	7.07	6.65	15.76	16.5/	1.624	1.816	18.67	20.17	13.58	14.03	72.79	69.58
	Select super	6.51	6.21	14.85	16.03	1.543	1.668	18.83	19.67	13.47	13.48	71.61	68.56
	Fusillade +hand hoeing once	9.94	9.18	18.23	18.53	2.139	2.154	19.37	20.87	14.81	15.70	76.45	70.44
	Select + hand hoeing once	9.30	8.67	17.41	18.18	2.106	2.015	19.87	20.23	15.17	15.16	76.33	69.97
	Un-weeded (control)	5.57	6.06	14.76	14.06	1.488	1.453	18.07	19.47	13.15	13.41	72.83	68.89
75	Hand hoeing twice	12.23	10.21	25.02	23.66	3.296	3.234	21.23	22.93	16.24	16.74	76.53	73.01
	Fusillade super	7.82	8.65	18.82	19.30	2.118	2.253	19.67	21.20	14.32	14.74	72.83	69.56
	Select super	7.49	8.11	17.89	18.46	2.065	2.070	19.60	20.87	14.62	14.29	74.59	68.49
	Fusillade+hand hoeing once	9.30	9.42	20.34	20.74	2.512	2.599	20.23	21.30	15.44	15.60	76.36	73.32
	Select + hand hoeing once	10.17	9.00	21.44	21.42	2.440	2.330	20.73	21.30	15.35	15.22	74.05	71.48
	Un-weeded (control)	7.04	6.90	16.40	16.70	1.808	1.882	19.00	20.57	14.10	14.34	74.62	69.74
100	Hand hoeing twice	12.27	10.71	28.19	27.17	3.980	3.874	22.03	22.67	17.19	17.34	78.08	76.52
	Fusillade super	9.47	8.74	20.97	21.50	2.596	2.770	20.33	21.90	15.45	15.95	76.00	72.81
	Select super	9.35	8.92	20.33	21.01	2.535	2.564	20.10	21.43	15.54	15.27	77.32	71.24
	Fusillade +hand hoeing once	10.63	9.33	23.03	22.71	3.027	3.170	20.73	22.40	16.21	16.02	78.20	75.98
	Select + hand hoeing once	11.29	10.08	21.38	20.47	2.610	2.290	21.03	21.67	16.36	15.09	77.78	74.28
	Un-weeded (control)	7.78	7.42	18.75	19.30	2.156	2.267	19.53	21.37	14.57	14.82	74.61	69.40
L.S.D at 5%		*0.83*	*0.76*	*2.18*	*1.92*	*0.16*	*0.18*	*NS*	*NS*	*NS*	*NS*	*NS*	*NS*

But the lowest top, root and sugar yields (5.57, 14.76 and 1.488 tons/fed in the first season, respectively and 6.06, 14.06 and 1.453 tons/fed in the second season, respectively) were obtained from with 50kg N/fed un-weeded plots fertilized.

d-Juice quality:

The results in Table 7 showed that total soluble solids % (T.S.S), sucrose % and purity % were not significantly affected by the interaction between nitrogen levels and weed control treatments in both seasons, which means that these factors acts independently from each other..

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تأثير بعض طرق مكافحة الحشائش و مستويات السماد النيتروجيني على محصول وجودة بنجر السكر المنزرع فى الأراضي حديثة الاستصلاح

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أقيمت تجربتان حقليتان في المزرعة البحثية لكلية الزراعة بسوهاج جامعة جنوب الوادي في موسمي ٢٠٠٤/٢٠٠٥ و٢٠٠٥/٢٠٠٦ بهدف دراسة تأثير ثلاثة مستويات من السماد الازوتي (٥٠، ٧٥، ١٠٠ كجم نيتروجين للفدان) و بعض طرق مكافحة الحشائش (عزقتين فقط ، استخدام مبيد فيوزيلد سوبر ، استخدام مبيد سيلكت سوبر ،استخدام الفيوزليد + عزقة واحدة ،استخدام مبيد سيلكت سوبر + عزقة واحدة ، بدون معامله).

وتشير النتائج المتحصل عليها على الاتى:

ادت زيادة مستويات السماد الازوتى المضافة الى زيادة معنوية لصفات قطر الجذر ، الوزن الغض لكل من اوراق وجذر النبات ، محصول العروش والجذور والسكر للفدان ، نسبة المواد الصلبة الذائبة الكلية كذلك ادت الى زيادة الوزن الجاف للحشائش بينما لم تتأثر نسبة السكروز والنقاوة معنويا بهذه الزيادة.

قللت كل معاملات مكافحة الحشائش الوزن الجاف للحشائش ضيقة وعريضة الاوراق والوزن الجاف الكلي للحشائش ، كذلك ادت هذه المعاملات الى زيادة قراءات المحصول ومكوناتة وجودتة لبنجر السكر كل الصفات السابقة زيادة معنوية مقارنة بعدم المقاومة . وتشير النتائج انه لتعظيم انتاجية بنجر السكر فى الاراضى الرملية لمحافظة سوهاج يجب اعطاء عزقتين بعد ٢١ و ٥١ يوم من الزراعة مع التسميد بمعدل ١٠٠كجم ازوت للفدان.