RESPONSE OF TWO SESAME VARIETIES TO NITROGEN FERTILIZER AND SOME WEED CONTROL TREATMENTS Rehab, H.K.A. * and A.A.O. Fakkar**

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ABSTRACT

Two field experiments were carried out during 2005 and 2006 growing seasons at the Experimental Farm Shandaweel Research Station, Sohag Governorate, A.R.C., to study the effect of two sesame varieties performance (Toushki-1 and Shandaweel-3), three nitrogen fertilizer (40, 60 and 80 Kg N/fed.) and six weed control treatments (Fusilade super, Fusilade super + Hand hoeing once, Select super, Select super + Hand hoeing once, Hand hoeing twice and unweeded) on sesame yield and associated weeds. The data could be summarized as follows:

The variety of Toushki-1 decreased significantly the dry weight of grassy, broad and total weeds g/m^2 by 49.1, 15.2 and 34.1%, respectively compared with Shandaweel-3 in the first season and by 24.0, 6.8 and 13.0% in the second season in this respective. In both seasons sesame varieties differed significantly in all studied characters. Maximum means of plant height, capsule length, fruiting zone length, number of capsules/plant, 1000-seed weight, day to 50% flowering, oil% and seed yield ardab/fed were produced from Toushki-1 variety. While Shandaweel-3 variety produced the lowest means of this traits.

Increasing nitrogen levels from 40 to 80 kg N/fed increased the dry weight of all weeds in both seasons. Increasing nitrogen levels from 40, 60 and 80 kg N/fed significantly increased all characters under investigation. Seed yield/fed increased significantly with increasing nitrogen levels (60 and 80 kg/fed) by (27.3 & 12.5) and (24.5 & 8.1 %) in the first and second seasons, respectively, as compared with the level 40 Kg N/fed.

All weed control treatments reduced the dry weight of weeds as compared with unweeded. Also, all weed treatments surpassed the unweeded in the estimated sesame characters. Hand hoeing twice (30 and 45 DAS), Select super + hand hoeing once and Fusilade super + hand hoeing once increased significantly seed yield (ardab/fed) by 87.5, 72.1 and 48.2 in the 1st season and by 65.6, 54.7 and 33.9% in the 2nd seasons, respectively. Most interactions under this study were significantly for most characters.

From this investigation, sesame plants treated with hand hoeing twice (30 and 45 DAS) and fertilized with 80 kg N/fed. gave the highest seed yield and yield components under sesame Toushki-1 variety.

INTRODUCTION

In Egypt, there is a vast gap between production and consumption of edible oils, the local production satisfies 8-10 % of the total requirements. Sesame is one of the main oils crops. This crop effected of many environmental factors, from these factors, varieties, fertilization and weed control treatments. Integrated weed management is of great importance for realizing high yield of field crops. Major weed problems in sesame have to address narrow and broad-leaf weeds. Moreover, weed management is an integral part of sesame production. In order to select the most appropriate herbicides or devise the optimum weed control system, one must be able to properly identify the weeds present within a field.

Cultivating high yield varieties become the principles of agricultural production for its maximum yields and tolerants to pest, diesis and weeds. Ibrahim et al. (1987) studied three sesame cultivars viz., Mutant Line No. 8, Mutant Line No. 48 and Giza 25 and did not find significant varietal differences in oil content%. El-Mandoh and Abdel-Magid (1996) mentioned that sesame cvs B10, B11, B35 and Giza 32 differed significantly in relation to seed yield/plot. El-Kramany et al. (2000) showed that the Mutation-8 surpassed significantly Giza 32 cultivar in number of capsules/plant and seed yield/feddan. On the other hand, Giza 32 exceeded Mutation-8 in plant height, number of branches/plant, seed yield/plant and seed index. Tiwari et al. (2000) tested some sesame cultivars TKG-21, TKG-22 and RS-228 under seed rate (5 kg/ha) found that the cv. TKG-21 had the highest seed oil content (51.34%) and seed protein content (28.3%). Sarala et al. (2002) evaluated sesame cultivars Madhavi, VRI-1, and TMV-3 and found that seed yield was highest in Madhavi followed by TMV-3 and VRI-1. Abdel-Wahab et al. (2005) indicated that Giza 32 cv. over significantly Toushky-3 cv. in seed yield, fruiting zone length, No. of capsules/plant, 1000-seed weight, seed yield/plant and seed oil% while seeds of Toushky-3 cv. were richer in protein content. Abo-El-Wafa and Abdel-Laltief (2006) showed that varieties Toushky-1 and Giza 32 surpassed Shandaweel-3 in seed yield and yield attributes, while seeds of Giza 32 were richer in oil content over other cultivars.

It is well known that nitrogen fertilizer plays a direct effect on growth, yield and seed quality of sesame. Metwally et al. (1984) stated that highest yield and oil production was obtained at the highest of nitrogen application (60 kg/fed). Osman (1993) noticed that N application at the rate of 80 kg/ha as urea gave significantly increased number of days to onset of flowering and number of capsules/plant. El-Maghraby et al. (1994) indicated that sesame seed and oil yields increased significantly with increasing nitrogen level up to 60 kg N/fed. Om-Prakash and Singh (2001) indicated that application of 90 kg N/ha resulted in the highest number of capsules/plant, number of seeds/capsule, 1000-seed weight and sesame seed yield. Allam (2002) noted that increasing of nitrogen rates (45, 60 and 75 kg N/fed) increased plant height, length of fruiting zone, number of branches and capsules/plant, seed yield/plant and per feedan, oil% and oil yield. Sajathamma et al. (2003) concluded that number of seeds/capsule, number of capsules/plant and 1000-seed weight was significantly affected by the nitrogen treatments in sesame. Fard and Bahrani (2005) concluded that increasing of nitrogen rates (0, 60 and 90 kg/ha) increased the number of branches/plant, number of capsules/ plant, seed yield and protein content. Mishra et al. (2005) showed that seed yield increased with higher doses of nitrogen fertilizer (at 90 and 120 kg/ha) for sesame.

Weeds are considered the major constraints affecting growth and crop yields in sesame.

Shukkla (1984) found that hand hoeing twice gave effective control of weeds and resulted in sesame seed yield of 132.5 kg as compared with unweeded treatment (72.5 kg). Malik and Ranzan (1992) showed that the application of Fusilade supper 25%EC (Fluazifop-p) at 3.7 L/ha and hand

hoeing once gave an effective level of control and gave a significantly higher seed yield (5.8 t/ha) as compared with the untreated control (3.06 t/ha). El-Ouesni et al. (1994) found that hand hoeing twice at 35 and 55 days after sowing gave the lowest weed dry matter and fresh weight and the greatest crop plant height and seed yields. Sootrakr et al. (1995) found that hand hoeing at 25,40 and 55 days after sowing resulted in the lowest weed counts at crop and highest weed control efficiency by 98 %. Averaged for the sesame varieties ,highest seed yield (0.77 t/ha) was recorded under the three hand hoeings treatments. Mushtag and Vyas (1997) showed that maximum yield was obtained with application of Acifluorfen and Bentazone. Chauhan and Gurjar (1998) stated that hand hoeing thrice 20, 40 and 60 days after sowing and application of Besalin at 0.75 kg/ha followed by hand hoeing twice at 20 and 40 (DAS) gave highest sesame seed yield. Grichar et al. (2001) found that the application of Fluazifop-p and Bentazon gave highest yield compared with untreated control. Chandawat et al. (2004) indicated that application of 2 Kg Alachlor/ha with hand hoeing at 20 or 30 days after sowing resulted in the heights number of primary branches/plant and seed yield (713 Kg/ha).

The present work was performed to study the inter-relationships among levels nitrogen fertilization and some weed control treatments on yield and its components as well as qualits traits of two sesame varieties.

MATERIALS AND METHODS

Two field experiments were carried out during 2005 and 2006 growing seasons at the experimental farm Shandaweel Research Station, A.R.C., to study response of two sesame varieties to nitrogen fertilizer and some weed control treatments on yield and associated weeds. A split-split plot design with four replications was used in both seasons. The two sesame varieties (Shandaweel-3 and Toushki-1) were allocated to the main plots and nitrogen fertilizer levels (40, 60 and 80 kg N/fed) were in the sup-plot, while weed control treatments were randomly distributed to the sub-plots.

Weed control treatments were as follows:

- 1. Fusilade super EC 12.5% (Fluazifop-p-butyl) at the rate of 1.5 L/fed at 15 days after sowing.
- 2. Fusilade super at the rate of 1.5 L/fed at 15 days after sowing + Hand hoeing once after 45 days from sowing.
- Select super EC 12.5% (Clethodim) at the rate of 1.0 L/fed at 15 days after sowing
- Select super at the rate of 1.0 L/fed at 15 days after sowing + Hand hoeing once after 45 days from sowing.
- 5. Hand hoeing twice at 30 and 45 days from sowing.
- 6. Un-weeded control.

The herbicidal treatments were sprayed uniformity with Knapsack sprayer with spray volume of 200 Liters/fed after sowing and before the first irrigation.

Each sub-sub plot consisted of 5 rows 3.5 m^2 long and 60 cm apart with an area 10.5 m^2 (1/400 fed). Sesame seeds were manually sown on one side of the rows at 20 cm apart between hills on the 2^{nd} week of June in both seasons, while harvesting was done at age of 130 days. Phosphorus fertilizer

was added at land preparation at the rate of 30 kg P_2O_5 /fed in the form of calcium super phosphate 15.5%. Potassium was added at the rate of 24 kg K₂O/fed in the form of Potassium sulfate 48% with the 1st N-portion. Nitrogen as ammonium nitrate (33.5%) was added in two equal doses before first and second irrigation. The preceding crop was wheat (*Triticum Spp*) in both seasons.

Physical and chemical analysis of the soil of the experimental site showed that the soil was clay loam and containing of 35.0, 910 and 307 ppm for N, P and K, respectively with 8.52 PH. Other agricultural practices were done as recommended in the region.

Data recorded:

I. Weed survey:

Weeds were hand pulled from 1.0 m² each plot after 75 days from sowing. Weeds were identified and classified to broad and narrow-leaved weeds to record the following traits:

- 1. Dry weight of narrow leaved weeds/m² (g).
- 2. Dry weight of broad leaved weeds/m² (g).

3. Dry weight of total weeds/m² (g).

Weeds were air-dried for seven days and then were oven-dried at 70 C° for 24 hours until a constant weight was reached. The dominant weed species were counted in the experimental plots in both seasons as shown in Table 1.

Table (1): Scientific name, common name and family for weeds
accompanied Sesame crop in the experimental site during
2005 and 2006 seasons, survey in Shandaweel research
station

Weeds type	Scientific name	Common name	Family
	Xanthium spinosum L.	Spiny cock lebur	Asteraceae
	Portulaca oleracea L.	Common puslane	Protulaceceae
Broad	Euphorbia peplus L.	Leafy spurge	Euphorbiaceae
leaved	Lotus corniculatus L.	Birds foot -trefoil	Leguminosae
	Corchorus olitorius L.	Malta jute	Tilaceae
	Amaranthus hybridus L.	Pig weed	Amaranthaceae
Grassy	Echinochola colonum L.	Jungle rice	Poaceae

II. Sesame crop:

A-Yield attributes: At harvest, a random sample of 10 plants was taken from each sub-sub plot to determine the following traits: Plant height (cm), fruiting zone length, capsule length, number of capsule/plant, number of plants/plot, seed yield/plant (g), 1000-seed weight (g) and seed yield ardab/fed were recorded for each sample.

- Day to 50% flowering: number of days from sowing to 50% flowering on plot basis
- Wilt infection%: diseased (wilted) plants as well as the total number of plants were recorded for each plot under natural infection conditions, then the infection percentage of wilted plants was calculated.

B-Seed quality: Seed oil content% was determined by using Soxhelt apparatus and petroleum ether as a solvent also seed protein content% was carried out by the improved Kjeldhal method (A.O.A.C. 19980).

The results were statistically analyzed according to Gomez and Gomez (1984) and least significant differences LSD at 5% level of significant were used to compare between means.

RESULTS AND DISCUSSION

1- Varieties performance:-

A- Weeds:

Data presented in Tables 2 and 3 showed that varieties affected significantly dry weight of grassy, broad leaved and total weeds g/m^2 in both seasons. The variety of Toushki-1 significantly decreased the dry weight of grassy, broad and total weeds (g/m^2) by 49.1, 15.2 and 34.1%, respectively as compared with Shandaweel-3 in the first season and by 24.0, 6.8 and 13.0% in the second season in this respective. These results may be due to the increase of grows of canbe of Toushki-1 variety and plant tall their cause seeding which minimize grass growth and its weight. These finding are are in harmony with those reported by Abo-El-Wafa and Abdel-Laltief (2006)

B- Yield and yield components:

Data presented in Tables 3, 4, 5, 6,7 and 8 shows that the variety Toushki-1 significantly increase plant height, capsule length, fruiting zone length, number of capsules/plant, 1000-seed weight, oil% and seed yield ardab/fed, days to 50% flowering and wilt infection% in both seasons as compared with the variety of Shandaweel-3. The variety of Toushki-1 gave increased of seed yield ardab/fed by 12.3 and 13.2% in the first and second seasons, respectively as compared with the variety of Shandaweel-3. These increases may be due to increase of Toushki-1 in the fruiting zone length, number of capsules/plant and 1000-seed weight than Shandaweel-3. These results are in harmony with those reported by El-Mandoh and Abdel-Magid (1996); El-Kramany *et al.* (2000); Tiwari *et al.* (2000) and Abdel-Wahab *et al.* (2005).

2- Nitrogen levels effect:-A- Weeds:

Results in Tables 2 and 3 showed that nitrogen levels (40, 60 and 80 kg N/fed) significantly affected dry weight of grassy, broad leaved and total weeds g/m² in both seasons. Increasing nitrogen levels from 40 up 80 kg N/fed increased the dry weight of all weeds in both seasons. In the first season, the high level of nitrogen 80 kg N/fed significantly increased dry weight of grassy, broad leaved and total weeds by 29.1, 54.7 and 41.0%, respectively as compared to the low level 40 kg N/fed and by 22.9, 13.8 and 17.9% in the second season in this respective. These results may be due to nitrogen fertilizer stimulated the germination of weed seeds and increased vegetative growth of weed plant and consequently increased their accumulated increased the amount of dry matter/plant.

T 2

Т3

B- Yield and yield components:

Data presented in Tables 3, 4, 5, 6, 7 and 8 showed that increasing nitrogen levels from 40 up to 80 kg N/fed significantly increased plant height, capsule length, fruiting zone length, number of capsules/plant, number of plants/plot, seed yield/plant, 1000-seed weight, days to 50% flowering, wilt infection%, oil% and seed yield ardab/fed in both seasons. Seed yield/fed significantly increased and consonantly with increasing nitrogen levels. This increase in the first season amounted to 27.3 and 12.5% as compared with the low level of nitrogen, respectively, and 24.5 and 8.1% in the second season. These increases may be due to the fact of that nitrogen is generally deficient in Egypt soils and therefore its addition enables the plants to absorb balanced nutrients, which promotes and a consequence growth and yield are enhanced. These finding are in harmony with those reported by Metwally *et al.* (1984), Osman (1993), El-Maghraby *et al.* (1994), Om-Prakash *et al.* (2001), Allam (2002), Sajathamma *et al.* (2003), Fard and Bahrani (2005) and Mishra *et al.* (2005).

3- Weed control treatments effect: A- Weeds:

Data in Tables 2 and 3 indicated that all weed control treatments reduced significantly the dry weight of grassy, broad leaved and total weeds g/m². Hand hoeing twice at 30 and 45 DAS, Select super + hand hoeing once and Fusilade super + hand hoeing once gave the lowest values of the dry weight of grassy, broad leaves and total weeds by (77.8, 82.4 and 80.3%), (72.8, 77.1 and 75.1%) and (65.6, 75.0 and 70.7%), respectively in the first season, and by (82.8, 73.2 and 87.7%), 80.1, 68.0 and 76.5%) and (78.5, 46.3 and 63.8%), respectively in the second season as compared with unweeded treatment. Such treatments continuously eliminated weed grown a long most of the growing season of sesame plant consequently gave the highest reduction in dry weight of sesame weeds. These results were in consistence with those obtained by Shukla (1984), El-Ouesni *et al.* (1994) and Sootrakar *et al.* (1995).

B- Yield and yield components:

Results in Tables 3, 4, 5, 6, 7 and 8 showed that the effect of weed control treatments on yield and yield components of sesame. It is clear that plant height, capsule length, fruiting zone length, number of capsules/plant, number of plants/plot, seed yield/plant, 1000-seed weight, days to 50% flowering, wilt infection%, oil content% and seed yield ardab/fed were significantly affected by weed control treatments. The greatest values of all above traits were obtained by hand hoeing twice (30 and 45 DAS), Select super + hand hoeing once and Fusilade super + hand hoeing once in both seasons. This treatments increased significantly seed yield (ardab/fed) in the first season by 87.5, 72.1 and 48.2%, respectively and by 65.6, 54.7 and 33.9%, respectively in the second season, This finding is almost expected, sine two hand hoeing, Select super + hand hoeing once and Fusilade super + hand hoeing once treatments exerted the highest reduction in dry weight of sesame weeds (Tables 2 and 3) and minimized the weed application strength against crop plant and affected to them more utilization of available environmental resources to maximize seed yield and its attributes. Similar results were obtained by Malik and Ramzan (1992), Sootrakar et al. (1995), Mushtag and Vyas (1997), Chauhan and Gurjar (1998) and Grichar et al. (2001).

T4

T5

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Т8

4-Interactions effect:-

A- Weeds:

Data in Tables 2 and 3 indicated that most interaction between varieties (A), Nitrogen fertilization levels (B) and weed control treatments (C) significantly reduced the dry weight of annual weeds in both seasons.

Interaction between A x B were significant effect on broad, narrow and total weeds in the first season only.

Interaction between A x B x C were significant effect on dry weight of broad leaved weeds in second season and total weeds in first season only. Hand hoeing twice, Select super + hand hoeing once and Fusilade super + hand hoeing once were the best treatments in the all interactions (A x B, A x C and B x C) in both seasons. with nitrogen level 40 kg/fed and Toushki-1 variety.

B- Yield and yield components:

Most interaction between the three factors (A x B, A x C and B x C) in Tables 3, 4, 5, 6, 7 and 8 were significant effect on yield and yield characters in both seasons. Hand hoeing twice, Select Super and Fusilade Super gave the highest values in all yield and yield characters in both seasons with Toushki-1 variety and the highest nitrogen level (80 kg N/fed). The interactions between A x B x C were non significant effect on all attribute croup in both seasons, except for fruiting zone length in second season and wilt% in first season.

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استجابة صنفين من السمسم للتسميد النتروجيني وبعض معاملات مقاومة الحشائش حمام خضري احمد رحاب* وعادل احمد عمران فكار** * مركز البحوث الزراعية - معهد بحوث المحاصيل الحقلية **مركز البحوث الزراعية - المعمل المركزي لبحوث الحشائش أقيمت تجربتان حقليتان بمزرعة محطة البحوث الزراعية بجزيرة شندويل خلال

اليمك لجربتان خطيتان بمررعة محطة البحوك الرراعية بجريرة سندويل حكن موسمي ٢٠٠٥ و ٢٠٠٦ وذلك لدر اسة استجابة صنفين من السمسم للتسميد النيتروجيني وبعض معاملات مقاومه الحشائش وتأثير ذلك على المحصول ومكوناته وجودة البذور والحشائش المصاحبة.

وكانت أهم النتائج المتحصل عليها كما يلى:

أَظهرت النتائج أن الوزن الجاف للحشائش الضيقة والعريضة الأوراق والحشائش الكلية اختلف معنويا باستخدام الأصناف محل الدراسة. وأوضحت النتائج أن صفات طول النبات وطول الكبسولة وطول المنطقة الثمرية ووزن الألف بذرة و ٥٠٪ تز هير والنسبة المئوية للزيت ومحصول البذور للفدان كانت متفوقة في الصنف توشكي-١ عن الصنف شندويل –٣ في كلا الموسمين.

ادت زيادة مستويات التسميد الازوتي من ٤٠ كجم إلى ٨٠ كجم إلي زيادة الوزن الجاف للحشائش الضيقه والعريضة والكليه وكذلك زيادة صفات طول النبات وطول الكبسولة وطول المنطقة الثمرية ووزن الألف بذرة و ٥٠٪ تزهير والنسبة المئوية للزيت ومحصول البذور للفدان في كلا الموسمين.

أدت معاملات مقاومة الحشائش إلى نقص معنوي في الوزن الجاف للحشائش الضيقة والعريضة الأوراق والكلية وذلك مقارنة بالمعاملات الأخرى. كما حققت أعلى القيم بالنسبة لصفات طول النبات وعدد الأفرع/ نبات وعدد الكبسولات/ نبات ووزن البذور/ نبات ووزن الـ ١٠٠٠ بذرة وكذلك المحصول/ فدان والزيت/ في الموسمين.

توصى هذه الدراسة للحصول على أعلى محصول وأفضل جودة للبذور استخدام معاملة العز يق مرتين أو استخدام مبيد سلكت سوير + عزقة أو استخدام مبيد فيوزليد سوير + عزقة مع معدل ٨٠ كجم نيتروجين للفدان مع الصنف توشكي-١.

	Characters			Capsule length (cm)													
Variation	Seasons		2005				2006				2005				2006		
(A)	Weed control (C)	N-Lev	els kg/f	ed (B)	Mean	N-Lev	els kg/f	ed (B)	Mean	N-Le	vels k (B)	g/fed	Mean	N-Le	vels/fe	ed (B)	Mean
		40	60	80		40	60	80		40	60	80		40	60	80	
	Fusilade super	113.5	131.5	137.5	127.5	132.5	143.5	152.2	142.7	2.98	3.33	3.43	3.24	2.73	2.95	3.38	3.02
Ξ	Fusilade super + HH	127.0	137.8	145.5	136.8	139.2	156.0	158.5	151.2	3.23	3.43	3.60	3.82	2.90	3.50	3.45	3.18
hk	Select super	131.0	146.8	157.0	144.9	149.2	166.2	163.5	159.6	3.43	3.60	3.80	3.61	3.35	3.50	3.55	3.47
sn	Select super +HH	134.5	152.3	162.5	149.8	158.0	157.5	171.7	162.3	3.53	3.70	4.10	3.78	3.43	3.55	3.88	3.61
° ∟	Hand hoeing twice	142.5	154.5	170.5	155.8	162.2	166.5	175.5	168.1	3.63	3.98	4.65	4.08	3.48	3.75	4.48	3.90
	Un-weeded	102.8	111.2	133.2	115.8	115.2	123.0	137.5	125.2	2.80	3.05	3.04	3.05	2.48	2.70	3.38	2.85
Mean		125.2	139.0	151.1	138.4	142.7	152.1	159.8	151.5	3.26	3.51	3.81	3.53	3.06	3.28	3.68	3.34
3	Fusilade super	102.5	119.0	125.3	115.6	114.5	122.7	132.7	123.3	3.04	3.32	3.39	3.25	3.90	4.10	4.38	4.13
ee	Fusilade super + HH	120.0	124.5	128.3	124.2	125.5	139.5	138.0	134.3	3.39	3.54	3.77	3.57	4.18	4.45	4.38	4.33
awe	Select super	125.8	130.0	136.2	130.7	131.5	144.2	144.5	140.1	3.67	3.82	4.07	3.85	4.43	4.58	4.60	4.53
pr	Select super +HH	143.0	136.0	148.3	142.4	136.7	145.7	153.5	145.3	3.62	3.62	3.74	3.66	4.53	4.68	4.73	4.64
าลเ	Hand hoeing twice	147.8	150.5	157.8	152.0	140.7	157.7	163.2	154.0	3.89	3.99	4.31	4.07	4.63	4.83	5.50	4.98
si	Un-weeded	93.8	104.5	112.5	103.6	101.5	119.5	132.5	118.0	2.87	3.12	3.24	3.07	3.68	4.00	4.35	4.01
Mean		122.1	127.4	134.7	128.0	125.1	138.2	144.1	135.8	3.41	3.57	3.75	3.58	4.22	4.44	4.65	4.44
	Fusilade super	108.0	125.2	131.4	121.5	123.5	133.1	142.5	133.0	3.01	3.32	3.41	3.24	3.31	3.53	3.88	3.57
Moon	Fusilade super + HH	123.5	131.1	136.9	130.5	132.4	147.7	148.2	142.8	3.31	3.48	3.68	3.49	3.54	3.82	3.91	3.76
wood	Select super	130.1	141.1	149.4	140.2	140.4	155.2	154.0	149.9	3.55	3.71	3.93	3.73	3.89	4.04	4.08	4.00
control	Select super +HH	137.0	141.4	152.6	143.7	149.4	151.6	162.6	154.5	3.57	3.66	3.92	3.72	3.98	4.11	4.30	4.13
control	Hand hoeing twice	145.1	152.5	164.1	153.9	149.5	162.1	169.4	160.3	3.76	3.98	4.48	4.07	4.05	4.29	4.99	4.44
	Un-weeded	98.3	107.9	122.9	109.7	108.4	121.2	135.1	121.6	2.83	3.08	3.27	3.06	3.08	3.35	3.86	3.43
Mean of f	Mean of fertilization		133.2	142.8	133.3	133.9	145.2	152.0	143.7	3.34	3.54	3.78	3.55	3.64	3.86	4.17	3.89
LSD at 0.8	LSD at 0.5 level for.		В	С	AΒ	AC	BC	ABC		Α	в	С	AΒ	AC	BC	ABC	
Season 2	Season 2005		2.58	3.06	4.60	4.29	5.26	NS		0.06	0.40	0.09	0.23	0.12	0.15	NS	
Season 2	006	4.66	1.74	2.66	2.46	3.74	4.58	6.47		0.19	0.15	0.14	NS	NS	0.24	NS	

 Table 4: Effect of verities, nitrogen fertilizer, weed control treatment and their interaction of sesame on number of fruiting zone length (cm2) and capsule length (cm) in 2005 and 2006 seasons.

	Characters		Dry v	veight o	of narro	w-leaf	weeds(g/m²)			Dry w	eight of	f broad	leaved	(g/m ²)		
Variation	Seasons		2005				2006				2005				2006		
(A)	Weed control (C)	N-Leve	els kg/f	ed (B)	Mean	N-Lev	els kg/f	ed (B)	Mean	N-Lev	els kg/f	fed (B)	Mean	N-Le	vels/fe	d (B)	Mean
		40	60	80		40	60	80		40	60	80		40	60	80	
	Fusilade super	60.92	59.5	68.0	62.8	37.3	53.6	46.6	45.8	66.4	70.3	79.0	71.9	77.0	89.4	92.1	86.1
ki-1	Fusilade super + HH	37.47	41.7	47.4	42.3	24.6	33.4	35.5	31.2	43.3	56.7	61.4	53.8	74.3	78.3	79.4	77.4
sh	Select super	50.10	56.0	59.6	55.2	33.2	38.5	46.6	39.5	46.7	57.9	66.1	56.9	64.3	79.1	91.0	78.2
no	Select super +HH	25.42	35.4	40.1	33.7	18.0	27.3	30.0	25.1	43.1	57.4	66.8	55.8	44.8	45.5	52.1	47.5
-	Hand hoeing twice	15.25	26.8	26.0	22.7	21.3	27.6	31.2	26.7	22.0	39.4	52.4	37.9	35.6	33.2	35.7	34.9
	Un-weeded	142.75	167.6	182.6	164.3	130.6	159.8	166.5	152.3	169.6	230.4	292.4	230.8	136.8	143.4	146.8	142.4
Mean		55.31	64.5	70.7	63.5	44.2	56.7	59.4	53.4	65.2	85.4	102.0	84.4	84.2	78.2	82.9	77.7
e	Fusilade super	123.30	146.4	160.0	143.2	53.7	65.3	62.8	60.6	79.4	85.1	109.6	91.4	82.0	88.1	90.2	84.0
weel 3	Fusilade super + HH	80.22	99.6	113.5	97.6	44.8	42.5	43.7	43.7	52.1	67.1	84.1	67.8	76.3	85.2	81.8	83.9
dav	Select super	103.72	119.0	137.7	120.2	40.9	63.8	63.0	55.9	65.0	76.5	89.6	77.0	78.0	81.5	81.3	80.3
ano	Select super +HH	66.87	78.6	85.8	77.1	35.4	33.1	30.4	33.0	42.7	57.0	67.9	55.9	48.1	50.3	48.0	48.8
Sh	Hand hoeing twice	53.37	69.7	79.3	67.6	31.7	30.7	36.0	33.0	33.0	50.0	59.5	47.5	41.6	45.7	49.4	45.5
•••	Un-weeded	222.37	239.3	266.9	242.8	179.6	198.1	208.4	195.3	206.4	238.3	323.2	256.0	145.4	147.0	181.3	59.9
Mean		108.3	125.4	140.5	124.7	64.4	72.3	74.2	70.3	79.8	95.6	122.3	99.2	99.2	83.0	88.6	83.4
	Fusilade super	92.11	103.0	114.0	103.0	45.5	59.4	54.7	53.2	72.9	77.7	94.9	81.8	79.5	88.8	86.9	85.0
Mean	Fusilade super + HH	58.85	70.7	80.6	70.0	34.7	38.0	39.6	37.4	47.7	61.8	72.8	60.8	75.4	81.7	84.8	80.6
weed	Select super	76.91	87.5	96.7	87.7	37.1	51.2	54.8	47.7	55.9	67.2	75.2	66.1	71.1	80.3	86.1	79.2
control	Select super +HH	46.15	57.1	62.6	55.4	26.7	30.2	30.2	34.6	42.9	57.4	67.0	55.8	46.5	48.0	50.0	48.1
	Hand hoeing twice	34.31	48.3	52.7	45.1	26.5	29.2	33.9	29.8	27.5	44.7	56.0	42.7	38.6	39.5	42.5	40.2
	Un-weeded	182.56	203.4	224.7	203.6	155.1	178.6	187.5	173.8	188.0	234.3	305.8	242.7	41.1	145.2	164.0	150.1
Mean of f	ertilization	81.82	95.0	105.6	94.1	54.3	67.5	66.8	61.4	72.5	90.5	112.2	91.7	91.7	80.6	85.8	80.6
LSD at 0.5	5 level for.	Α	В	С	AB	AC	BC	ABC		Α	В	С	AB	AC	BC	ABC	
Season 2	005	8.30	3.31	4.26	4.68	5.97	7.32	NS		4.69	3.73	4.56	5.28	6.40	7.84	NS	
Season 2	006	0.65	2.92	4.01	NS	5.63	6.89	NS		3.70	4.71	4.71	NS	6.60	8.09	11.44	

 Table 2: Dry weight of narrow leaf and broad leaved weeds (g/m²) at 75 days after sowing of sesame as affected by varieties, fertilizer level weed control treatments and their interaction in 2005 and 2006 seasons.

	Charactero		-			tel wee		2\		Plant height (cm)								
	Characters			ry welę	jnt of to	tal wee	us(g/m	7				P	iant ne	ignt (ch	<u>)</u>			
Variotios	Seasons		2005				2006				2005				2006			
(A)	Weed control (C)	N-Lev	els kg/f	ed (B)	Mean	N-Lev	els kg/f	ed (B)	Mean	N-Lev	els kg/f	ed (B)	Mean	N-Le	vels/fe	d (B)	Mean	
		40	60	80		40	60	80		40	60	80		40	60	80		
	Fusilade super	127.3	129.8	147.0	134.7	114.3	143.0	138.7	131.9	139.5	148.5	168.5	152.2	152.5	163.3	173.0	162.9	
Ξ.	Fusilade super + HH	80.8	98.4	108.8	96.0	98.9	111.7	114.9	108.6	153.0	163.5	177.5	164.8	165.8	175.3	169.5	176.8	
Ч	Select super	96.8	113.9	125.7	112.1	97.5	117.6	137.6	117.7	162.8	179.8	192.8	178.4	177,5	186.8	202.8	189.0	
sn	Select super +HH	68.5	92.8	106.9	89.4	62.8	72.8	82.1	72.6	169.3	183.3	210.8	187.8	184	199.8	208.8	197.5	
P P	Hand hoeing twice	37.3	66.2	78.4	60.6	56.9	60.8	66.9	61.6	177.3	195.8	220.3	197.8	195	205.3	210.8	203.7	
	Un-weeded	312.4	398.0	475.0	395.1	267.4	303.2	313.3	294.7	130.8	161.5	173.3	155.3	143.3	154.3	167.5	155.0	
Mean		120.5	149.9	172.7	147.7	128.4	134.9	142.3	131.1	155.4	172.1	190.5	172.7	169.7	190.8	192.0	180.8	
3	Fusilade super	202.7	231.5	269.6	234.6	135.7	153.4	153	144.6	125.5	145.3	156.3	142.3	138.8	152.3	158.3	149.8	
aweel	Fusilade super + HH	132.3	166.7	197.6	165.5	121.1	127.7	125.5	127.6	147.5	158.3	154.3	153.0	150,3	161.3	169.5	160.3	
	Select super	168.7	195.5	227.3	197.2	118.9	145.3	144.3	136.2	177.0	179.3	183.3	179.8	174.5	183.0	187.0	181.5	
β	Select super +HH	109.6	135.6	153.7	133.0	83.5	83.4	78.4	81.8	169.3	168.5	168.0	168.6	182	185,8	202.8	190.2	
าลเ	Hand hoeing twice	86.4	119.7	138.8	115.0	73.3	76.4	85.4	78.5	183.8	185.3	193.8	187.6	189.5	194.0	213.8	199.1	
SI	Un-weeded	428.8	477.6	590.1	498.8	325.0	345.1	389.7	255.2	111.3	116.3	139.5	118.4	125	131.0	148.3	134.8	
Mean		188.1	221.0	262.8	224.0	163.6	155.3	162.8	153.7	152.4	158.7	163.8	158.3	160	167.9	179.9	169.2	
	Fusilade super	165.0	180.7	208.9	184.9	125.0	148.2	141.6	138.2	132.5	146.9	162.4	147.3	145.6	157.8	165.6	156.3	
Maan	Fusilade super + HH	106.6	132.5	153.4	130.8	110.1	119.7	124.4	118	150.3	160.4	166.0	158.9	158.0	168,3	179.5	168.6	
wood	Select super	132.8	154.7	171.9	153.1	108.2	131.5	140.9	126.9	169.9	179.5	188.0	179.1	176.0	184.9	194.9	185.2	
control	Select super +HH	89.1	114.5	129.6	111.1	73.2	78.2	80.2	82.7	169.3	174.9	189.4	178.2	183.0	192.8	205.8	193.8	
Control	Hand hoeing twice	61.8	93.0	108.7	87.8	65.1	68.7	76.4	70	180.5	190.5	207.0	192.7	192.3	199.6	212.3	201.4	
	Un-weeded		437.7	530.5	446.3	196.2	323.8	351.5	323.9	121.0	139.1	150.4	136.8	134.1	142.6	159.9	144.9	
Mean of f	Mean of fertilization		185.5	217.8	185.9	146.0	148.1	152.6	142	153.9	165.4	177.2	165.5	164.8	174.3	186.0	175.0	
LSD at 0.5	LSD at 0.5 level for.		в	С	AΒ	AC	BC	ABC		Α	в	С	AΒ	AC	BC	ABC		
Season 2005		11.73	6.39	6.84	9.04	9.60	11.75	16.62		3.50	6.31	6.38	NS	8.95	10.96	NS		
Season 2	006	3.50	6.31	6.38	NS	8.95	10.96	NS		4.84	2.59	3.28	NS	4.61	NS	NS		

Table 3: Total dry weight of weeds (g/m²) at 75 days after sowing, plant height (cm²) and their interaction of sesame as affected by varieties, fertilizer level weed control treatments and their interaction in 2005 and 2006 seasons.

	Characters			Num	ber of c	apsule	s/plant					Nur	nber of	plants/	ants/plot			
Variation	Seasons		2005				2006				2005				2006			
(A)	Weed control (C)	N-Lev	els kg/	fed (B)	Mean	N-Lev	els kg/i	ed (B)	Mean	N-Lev	els kg/f	ed (B)	Mean	N-Le	vels/fe	d (B)	Mean	
		40	60	80		40	60	80		40	60	80		40	60	80		
	Fusilade super	123.2	139.8	158.0	140.3	144.0	154.8	166.8	155.2	127.5	142.7	146.0	151.5	151.5	159.7	159.0	160.1	
ki-1	Fusilade super + HH	137.5	149.8	170.8	152.7	164.8	168.0	181.5	171.6	136.5	156.5	155.5	155.0	155.0	167.5	175.7	166.1	
sh	Select super	146.2	162.8	184.5	164.5	179.5	185.0	192.2	185.6	154.5	162.2	177.5	162.5	162.5	172.7	185.0	173.4	
no	Select super +HH	154.5	172.8	198.5	175.3	189.7	201.8	213.5	201.7	162.0	174.2	198.0	186.2	168.2	175.5	190.5	178.1	
F	Hand hoeing twice	163.5	179.8	220.0	187.8	201.5	218.2	229.5	216.4	167.5	188.0	223.2	170.2	170.2	179.2	199.2	182.9	
	Un-weeded	96.5	115.8	131.5	114.6	128.8	153.2	155.0	145.7	108.0	121.8	138.8	117.2	117.5	135.7	148.2	133.8	
Mean		136.9	153.4	177.2	155.8	168.0	180.2	189.8	179.3	142.7	157.6	173.2	154.2	154.2	165.1	178.0	165.7	
e	Fusilade super	109.5	123.8	148.8	127.3	111.2	125.5	153.2	130.0	115.0	122.5	136.2	124.6	125.7	130.7	142.0	132.8	
veel	Fusilade super + HH	115.8	136.2	166.0	139.3	133.2	142.2	173.2	149.6	132.5	138.0	153.2	141.2	132.5	139.0	161.2	144.2	
dav	Select super	156.2	177.2	197.0	176.8	161.7	175.2	187.5	174.8	143.2	153.2	167.5	154.6	143.7	154.7	167.7	155.4	
ano	Select super +HH	162.5	192.8	203.2	186.2	162.5	203.2	209.5	191.7	162.8	171.2	185.5	173.2	152.5	162.5	181.7	165.6	
Sh	Hand hoeing twice	186.2	201.8	210.0	210.0	185.8	206.2	217.5	203.2	166.0	179.6	191.2	179.0	167.5	174.7	189.2	177.2	
•••	Un-weeded	60.2	71.0	79.0	70.0	94.2	104.2	112.5	103.7	101.5	106.2	114.7	107.5	105.0	118.7	132.0	118.6	
Mean		131.8	150.5	167.5	149.9	141.5	159.5	175.6	158.8	136.8	145.2	158.1	146.7	137.8	146.8	162.3	149.0	
	Fusilade super	116.4	131.8	153.4	133.8	127.6	140.1	160.0	142.6	121.2	132.6	141.1	131.7	138.6	145.2	155.5	146.4	
Mean	Fusilade super + HH	126.6	143.0	168.4	146.0	149.0	155.4	177.4	160.6	134.5	147.2	154.4	145.4	143.7	153.2	168.5	155.2	
weed	Select super	151.2	170.0	193.9	171.7	171.0	180.1	189.9	180.3	152.6	163.8	181.5	166.0	153.1	163.8	176.4	164.4	
control	Select super +HH	158.5	182.8	198.1	179.8	175.8	202.5	211.5	196.6	158.6	166.8	182.8	169.4	160.4	169.0	186.1	171.8	
	Hand hoeing twice	174.9	190.8	215.0	193.5	193.6	212.2	223.5	209.8	166.7	183.9	207.2	185.9	168.9	177.0	194.2	180.0	
	Un-weeded	78.4	93.4	105.2	92.3	111.5	128.8	133.8	124.7	104.8	114.0	126.8	115.2	111.2	127.3	140.1	126.2	
Mean of fertilization		134.3	151.9	172.3	152.9	154.8	169.9	182.7	169.1	139.7	151.4	165.6	152.3	146.0	155.9	170.1	157.4	
LSD at 0.5	LSD at 0.5 level for.		В	С	AB	AC	BC	ABC		Α	В	С	AB	AC	BC	ABC		
Season 2	005	10.09	3.21	6.64	NS	NS	NS	NS		2.32	2.98	3.13	14.60	4.29	5.26	NS		
Season 2	006	6.36	3.92	5.06	5.55	7.11	8.71	NS		5.00	2.51	5.02	NS	2.07	NS	NS		

 Table 5: Effect of verities, nitrogen fertilizer, weed control treatment and their interaction of sesame on number of capsules/plant and number of plants/plot in 2005 and 2006 seasons.

	Characters			S	Seed yield/plant (g)							10	00-seed	eed weight (g)			
Variation	Seasons		2005				2006				2005				2006		
(A)	Weed control (C)	N-Leve	els kg/i	fed (B)	Mean	N-Lev	els kg/i	fed (B)	Mean	N-Leve	els kg/i	ed (B)	Mean	N-Le	vels/fe	d (B)	Mean
		40	60	80		40	60	80		40	60	80		40	60	80	
	Fusilade super	21.9	22.7	24.8	23.1	25.6	27.2	29.8	27.5	4.96	5.33	5.50	5.26	5.80	5.75	6.20	5.92
<u>.</u>	Fusilade super + HH	22.2	22.8	25.0	23.3	26.0	29.0	30.1	28.4	5.24	5.64	5.97	5.62	5.85	6.00	7.05	6.30
Ч	Select super	24.4	26.0	27.6	26.0	27.6	29.3	32.5	29.8	5.51	6.19	6.65	6.12	6.27	6.35	7.17	6.60
sn	Select super +HH	25.5	26.6	29.3	27.1	29.7	30.4	33.5	31.2	5.45	6.20	7.34	6.33	6.00	6.62	7.22	6.61
° L	Hand hoeing twice	26.3	29.9	31.6	29.3	32.1	31.0	40.7	34.6	5.82	6.49	6.67	6.33	6.45	6.77	8.10	7.11
	Un-weeded	16.4	19.2	20.1	18.6	22.5	23.2	26.9	24.2	4.19	4.46	4.96	4.54	4.97	5.60	5.50	5.36
	Mean	22.8	24.5	26.1	24.5	27.2	28.4	32.3	29.3	5.20	5.72	6.20	5.71	5.89	6.18	6.87	6.31
3	Fusilade super	19.2	21.1	22.8	21.0	20.1	22.8	26.6	23.2	4.90	5.00	4.93	4.94	4.55	4.55	5.27	4.79
iweel	Fusilade super + HH	20.2	20.4	23.1	21.2	21.6	25.8	27.8	25.1	5.21	5.36	5.32	5.30	5.12	4.75	5.95	5.27
	Select super	22.2	23.7	27.8	24.6	23.7	27.0	29.8	26.8	5.27	5.56	5.95	5.59	4.52	5.35	6.37	5.41
ğ	Select super +HH	22.9	26.5	28.8	26.1	24.5	28.0	31.3	27.9	5.67	5.93	6.01	5.87	4.92	5.27	6.70	5.63
Jar	Hand hoeing twice	24.3	27.2	30.5	27.3	26.6	29.4	40.0	32.0	5.80	6.14	6.10	6.01	5.85	5.85	6.77	6.16
S	Un-weeded	13.1	14.0	15.9	14.3	13.6	19.6	22.5	18.6	4.24	4.31	4.71	4.42	3.77	3.90	5.17	4.28
Mean		20.3	22.2	22.8	21.8	21.7	25.4	29.7	25.6	5.18	5.38	5.50	5.35	4.79	4.95	6.04	5.26
	Fusilade super	20.5	21.9	22.9	21.8	23.0	25.0	28.2	25.4	4.93	5.17	5.22	5.11	5.17	5.25	5.74	5.39
Maan	Fusilade super + HH	21.2	21.6	23.9	22.2	23.6	27.4	28.9	26.6	5.23	5.50	5.65	5.46	5.49	5.27	6.50	5.75
weah	Select super	23.6	24.9	28.2	25.6	25.7	28.2	31.7	28.5	5.56	6.07	6.67	6.10	5.46	5.81	6.77	6.01
control	Select super +HH	23.9	26.6	28.6	26.4	27.1	29.2	31.9	29.4	5.39	5.87	6.30	5.85	5.40	5.99	6.96	6.12
CONTROL	Hand hoeing twice	25.3	28.6	31.1	28.3	29.3	30.2	40.5	33.3	5.81	6.31	6.43	6.18	6.15	6.31	7.44	6.63
	Un-weeded	14.8	16.6	18.0	16.5	18.1	21.4	24.7	21.4	4.22	4.38	4.84	4.48	4.37	4.75	5.34	4.82
Mean of f	Mean of fertilization		23.3	25.4	23.4	24.5	26.9	31.0	27.5	5.19	5.55	5.58	5.44	5.34	5.56	6.46	5.79
LSD at 0.5	5 level for.	Α	в	С	AΒ	AC	BC	ABC		Α	в	С	AΒ	AC	BC	ABC	
Season 2005 0.12 0.39		0.39	0.76	0.55	1.06	1.30	NS		0.10	0.17	0.22	0.29	NS	NS	NS		
Season 2	Season 2006 1.98		0.37	1.09	1.47	1.53	1087	NS		0.23	0.29	0.27	NS	NS	0.46	NS	

Table 6: Effect of varieties, nitrogen fertilizer, weed control treatment and their interaction of sesame on seed yield/plant (g) and 1000-seed weight (g) in 2005 and 2006 seasons.

	Characters			Da	ys to 50	% flov	vering						Wilt infe	ction %			
Variation	Seasons		2005				2006				2005				2006		
(A)	Weed control (C)	N-Lo	evels k (B)	g/fed	Mean	N-Lev	els kg/	fed (B)	Mean	N-Leve	els kg/fe	ed. (B)	Mean	N-Le	vels/fe	d (B)	Mean
		40	60	80		40	60	80		40	60	80		40	60	80	
	Fusilade super	50.0	51.7	51.5	51.08	44.7	47.2	50.0	47.3	3.25	2.62	2.42	2.77	3.22	2.62	2.47	2.77
Ξ	Fusilade super + HH	52.7	52.5	52.5	52.6	48.5	49.0	51.5	49.7	4.25	6.12	1.75	3.04	4.02	2.35	1.85	2.74
hk	Select super	48.7	48.5	49.5	49.9	48.5	49.2	52.2	50.0	1.75	1.00	1.04	1.26	3.15	2.25	1.62	2.34
sn	Select super +HH	51.0	52.2	52.7	52.0	48.5	49.7	52.5	50.2	3.45	2.12	1.77	2.45	2.82	1.77	1.50	2.03
۲ ۲	Hand hoeing twice	48.5	49.5	49.5	49.2	49.0	50.2	53.2	50.8	1.12	0.50	1.02	0.88	2.05	1.22	1.07	1.45
-	Un-weeded	52.5	51.5	53.5	52.7	44.7	47.0	49.0	46.9	7.80	6.02	4.12	5.98	8.77	7.75	4.52	7.02
Mean		51.0	52.3	53.4	51.1	47.3	47.7	51.4	49.2	3.60	2.57	2.02	2.73	4.01	2.99	2.17	3.06
3	Fusilade super	50.5	50.0	52.5	51.0	47.0	52.7	47.2	52.3	7.75	7.62	4.80	6.72	4.90	5.42	4.45	5.26
ndaweel .	Fusilade super + HH	50.5	51.5	53.0	51.6	51.2	53.7	56.0	53.7	5.48	4.52	3.10	4.37	4.70	3.45	3.07	3.74
	Select super	50.5	53.2	54.2	52.7	49.5	50.7	56.0	52.1	4.75	4.52	2.50	3.92	6.22	3.10	2.52	3.95
	Select super +HH	52.5	54.0	54.5	53.7	52.2	54.2	56.5	54.3	4.17	3.37	2.30	3.28	4.17	2.90	1.72	2.93
าลเ	Hand hoeing twice	53.2	50.2	55.0	54.2	52.2	54.5	57.0	54.6	3.95	2.67	1.57	2.73	3.27	1.80	1.52	2.20
S	Un-weeded	48.7	52.5	51.5	50.2	49.2	51.2	51.0	50.5	14.28	11.00	7.82	11.03	12.45	9.92	8.12	10.17
Mean		51.0	52.3	53.4	52.2	50.2	52.9	55.6	52.9	6.73	5.62	3.68	5.34	6.12	4.43	3.57	4.71
	Fusilade super	50.2	50.9	52.0	51.0	45.9	50.0	53.6	49.8	5.50	5.12	3.16	4.74	4.56	4.02	3.46	4.02
Maan	Fusilade super + HH	51.6	52.0	52.7	52.1	49.9	51.4	53.7	51.7	4.86	3.82	2.42	3.70	4.36	2.90	2.46	3.24
wead	Select super	49.6	50.9	51.9	50.8	49.0	50.0	54.1	51.0	3.25	2.76	1.77	2.59	4.69	2.67	2.07	3.14
weed	Select super +HH	51.8	53.1	53.6	52.8	50.4	52.0	54.5	52.3	3.81	2.75	2.04	2.87	3.50	2.34	1.62	2.48
control	Hand hoeing twice	50.9	52.0	52.2	51.7	50.6	52.4	55.1	52.7	2.54	1.59	1.30	1.81	2.66	1.51	1.30	1.82
	Un-weeded	50.6	51.5	52.4	51.5	47.0	49.1	50.0	48.7	11.02	8.51	5.97	8.51	10.61	8.83	3.32	8.59
Mean of f	Mean of fertilization		51.7	52.5	51.7	48.8	50.8	53.5	50.0	5.17	4.09	2.85	4.04	5.06	3.71	2.87	3.88
LSD at 0.5	LSD at 0.5 level for.		в	С	AΒ	AC	BC	ABC		Α	В	С	AΒ	AC	BC	ABC	
Season 2	Season 2005		0.49	0.75	0.62	1.05	NS	NS		0.42	0.24	0.45	0.34	0.64	0.77	NS	
Season 2	006	2.19	1.82	1.32	NS	NS	NS	NS		0.61	0.34	0.33	NS	0.47	0.57	0.81	

 Table 7: Effect of varieties, nitrogen fertilizer and weed control treatments on days to 50 % flowering and wilt infection % sesame in 2005 and 2006 seasons.

	Characters				0	il %						Se	ed yield/	d yield/(ardab/fed)				
Variation	Seasons		2005				2006				2005				2006			
(A)	Weed control (C)	N-Lo	evels k (B)	cg/fed	Mean	N-Lev	els kg/	fed (B)	Mean	N-Lev	els kg/i	ied (B)	Mean	N-Le	vels/fe	d (B)	Mean	
		40	60	80		40	60	80		40	60	80		40	60	80		
	Fusilade super	53.5	53.3	53.5	53.3	53.1	53.6	53.8	53.5	4.73	5.41	6.08	5.41	6.77	6.64	6.91	6.77	
Ξ.	Fusilade super + HH	53.5	53.6	53.8	53.6	53.5	53.8	53.8	53.7	5.37	5.85	6.38	5.87	6.45	6.74	7.98	7.06	
Ч	Select super	53.8	53.8	53.9	53.7	53.5	53.9	54.1	53.8	5.55	6.46	7.46	6.49	6.39	7.00	8.47	7.29	
sn	Select super +HH	53.8	53.9	54.2	54.0	53.9	54.0	54.3	54.1	6.40	6.80	8.49	7.23	6.72	7.51	9.10	7.78	
<u>م</u>	Hand hoeing twice	53.7	54.1	54.3	54.0	54.0	54.2	54.4	54.2	6.63	7.52	8.72	7.62	7.35	8.25	9.56	8.40	
	Un-weeded	52.5	53.1	53.3	53.0	53.0	53.2	53.4	53.2	3.91	4.33	5.18	4.48	5.01	6.14	6.25	5.80	
Mean		53.3	53.6	53.8	53.6	53.5	53.8	54.0	53.7	5.43	6.06	7.05	6.18	6.45	7.05	8.05	7.18	
3	Fusilade super	52.3	52.7	53.1	52.7	52.0	52.5	52.5	52.3	4.65	4.97	5.42	5.02	5.85	5.71	5.55	5.70	
sel	Fusilade super + HH	52.8	53.0	53.2	53.0	52.5	53.3	53.4	53.1	4.96	5.55	6.03	5.51	5.37	5.54	7.00	5.97	
awe	Select super	52.3	53.2	53.3	52.9	52.9	53.5	53.4	53.3	5.31	6.25	6.46	6.01	6.00	6.49	7.99	6.83	
q	Select super +HH	53.2	53.3	53.7	53.4	53.3	53.6	53.7	53.5	5.10	6.05	6.82	5.99	6.33	7.19	8.29	7.27	
าลเ	Hand hoeing twice	53.3	53.3	53.8	53.5	53.4	53.8	54.0	53.7	6.03	6.71	7.66	6.77	6.99	7.16	8.51	7.70	
रु	Un-weeded	52.0	52.0	53.0	52.2	51.6	52.3	52.5	52.1	2.78	3.18	3.66	3.20	3.35	3.68	4.73	3.92	
Mean		52.6	52.9	53.3	53.0	53.1	53.2	53.2	53.0	4.81	5.45	5.99	5.42	5.65	6.04	7.01	6.23	
	Fusilade super	52.7	53.0	53.3	53.0	52.5	53.0	53.1	52.9	4.69	5.19	5.75	5.51	6.31	6.17	6.23	6.24	
Maan	Fusilade super + HH	53.1	53.3	53.5	53.3	53.0	53.6	53.6	53.4	5.16	5.70	6.21	5.69	5.91	6.14	7.49	6.51	
weah	Select super	52.9	53.5	53.6	53.3	53.2	53.7	53.8	53.6	5.43	6.36	6.96	6.25	6.20	6.75	8.23	7.06	
control	Select super +HH	53.5	53.6	53.9	53.7	53.6	53.8	54.0	53.8	4.75	6.43	7.65	6.61	6.53	7.35	8.70	7.52	
control	Hand hoeing twice	53.5	53.7	54.1	53.7	53.7	54.0	54.2	53.9	6.33	7.11	8.14	7.20	7.17	7.93	9.04	8.05	
	Un-weeded	52.2	52.6	53.0	52.6	52.3	52.7	53.0	52.7	3.34	3.75	4.40	3.84	4.18	4.91	5.49	4.86	
Mean of f	Mean of fertilization		53.3	53.5	53.3	53.1	53.5	53.6	53.4	5.12	5.76	6.52	5.80	6.05	6.54	7.53	6.71	
LSD at 0.5	LSD at 0.5 level for.		в	С	AΒ	AC	BC	ABC		Α	в	С	AΒ	AC	BC	ABC		
Season 2005		0.13	0.15	0.17	NS	NS	NS	NS		0.15	0.19	0.23	0.27	0.32	0.39	NS		
Season 2	006	0.16	0.15	0.14	0.21	NS	NS	NS		0.10	0.21	0.33	NS	0.46	0.56	NS		

 Table 8: Effect of varieties, nitrogen fertilizer and weed control treatments on oil% and seed yield (ardab/fed) sesame in 2005 and 2006seasons.