RESPONSE OF TWO BARLEY VARIETIES TO MINERAL AND BIOLOGICAL NITROGENOUS FERTILIZER AND WEED CONTROL TREATMENTS.

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ABSTRACT

Two field experiments were conducted in newly reclaimed land at Ismailia Agriculture Research Station, during the two successive winter seasons 2004/05 and 2005/06. The present research aimed to study the performance of two barley varieties [(Giza126) a hulled variety and (Giza 129) a hull-less barley], two kinds of fertilizer and five weed control treatments and its effect on the fresh weight of broad-leaved, grassy and total annual weeds, yield and yield components of barley.

Results indicated that varieties had no significant effect on the fresh weights of broad - leaved, grassy and total annual weeds at 70 and 100 days after sowing (DAS) in the first and second seasons. Varieties did not differ in plant height or yield and yield components of barley crop in both seasons except for the grain yield in the second season only. Grain yield increase reached around one ardab/fed for Giza 129 a hull-less variety as compared to Giza 126 a hulled variety.

Applying fertilizers affected significantly the fresh weight of annual broad leaved weed at 70 and 100 days after sowing (DAS) in the first and second seasons, annual grassy weed at 100 (DAS) in the first season and at 70 and 100 (DAS) in the second season as well as total annual weeds at 100 (DAS) in the first and second seasons. Applying, mineral fertilizer 90 kg N/fed without bio-fertilizer gave the highest reduction in the fresh weight of annual broad-leaved weed by 38.7 and 40.8% at 70 and 100 (DAS), respectively, annual grassy weed by 26.4% at 100 (DAS) and total annual weeds by 31.9% at 100 (DAS) as compared to 50 kg N/fed plus mineral fertilizer, 90 kg N/fed plus mineral fertilizer, 70 kg N/fed plus mineral fertilizer and 50 kg N/fed plus mineral fertilizer respectively, in the first season. Also the same treatment gave the highest reduction in the fresh weight of annual broad-leaved weed by 26.4% at 70 (DAS) as compared to 70 kg N/fed plus bio- fertilizer in the second season. While applying mineral fertilizer 70 kg N/fed plus bio-fertilizer gave the highest reduction in the fresh weigh of annual broad - leaved weed by 34.3% at 100 (DAS) as compared to 50 kg N/fed plus bio-fertilizer in the second season. Applying, mineral fertilizer 90 kg N/fed plus bio-fertilizer gave the highest reduction in the fresh weight of annual grassy weed by 31.9 and 46.1% at 70 and 100 (DAS), respectively and total annual weeds by 39.4% as compared to 50 kg N/fed plus bio-fertilizer at100 (DAS) in the second season. Applying fertilizers did not affect plant height or yield and vield components of barley crop in first and second seasons except in the case of grain yield in the first and second seasons. Applying mineral fertilizer 90 kg N/fed plus bio-fertilizer gave the highest increase in grain yield (ardab/fed) by 32.8 and 31.5%, respectively, as compared to 50 kg N/fed plus bio-fertilizer in the first and second seasons.

All herbicidal treatments gave a significant effect on the fresh weights of broad- leaved, grassy and total annual weeds at 70 and 100 (DAS) and gave significant effect on plant height and grain yield and yield components of barley crop in the first and second seasons.

In general, applying tifensulfuron-methyl + metsuluron - methyl (68.2+6.8%) at the rate of 18 g (a.i)/fed followed by clodinafop - propargyl at the rate of 21 g (a.i)/fed was the most effective superior treatment in controlling the fresh weight of total annual weeds 70 (DAS) by 93.6 and 94.9%, respectively, as compared to

untreated check in the first and second seasons. Tribenuron - methyl at the rate of 6 g (a.i)/fed followed by clodinafop-propargyl at the rate of 21 g (a.i)/fed was the most superior treatment in decreasing the fresh weight of total annual weeds by 96.2 and 97.6%, respectively, at 100 (DAS) as compared to untreated check in the first and second seasons. Also, applying the same treatment gave the highest increase in yield and yield components in the first and second seasons; thus gave the highest increase in grain yield (ardab/fed) by 144.6 and 164.6%, respectively, as compared to untreated check in the first and second seasons.

In general the interactions between varieties of barley, application fertilizers and weed control treatments had a significant effect in the fresh weights of annual broad - leaved, grassy and total annual weeds while, these interactions did not affect significantly on plant height, yield and yields components of barely except on grain yields in the first and second seasons.

The conclusion of the investigation that applying weed herbicides are the only measure effective in weed control in barley fields depend on weed class of dominant weed species meanwhile, the role of cultivars or fertilizers are not pronounced on weed control under the conditions of this study.

INTRODUCTION

Barley (Hordeum vulgare L.) is one of the main cereal crop. This is due to the ability of this crop to grow in less fertile soil and desert. Also, it is adapted to drought and salinity in the marginal lands and the new reclaimed areas. So, in Egypt it is consider an important cereal crop because most of barley production areas are located where the adverse conditions exist such as poor soil fertility and sandy soil which are found in the largest portion of the newly reclaimed lands. Barley also makes an excellent companion crop, because it contains 95% as much energy as corn, it makes a good animal feed and the best small grain silage as well as barley is used in the production of beer. The national production of cereals still far lower than the national consumption, therefore it is suggested to use different kind of barley varieties [a hulled and a hull-less varieties] as a complementary cereal crop to decrease this gap. El-Sayed et al. (2003 a) indicated that the two hull-less varieties of barley [Giza 130 and Giza 131] out yielded the national check hulled barley variety Giza 126. El-Sayed et al. (2003 b) reported that, the new hull-less barley variety Giza 129 out yielded the national check hulled barley variety Giza 123.

Nitrogen (N) is the main component of fertilizer programs necessary for production of high quality malt barley. Several investigation indicated that increasing N levels from 30 to 90 kg N/fed caused significant increases for most characters in barley varieties [Misra *et al.*(1980), Abdel Latif and Salamah (1982), El-Sayed *et al.* (1992), Gomaa (1997), Vinten *et al.* (2002) and Megahed (2003)].

Weeds are the most important class of barley pests where the costs of control and losses due to weeds are greater than that of any other pests. Several studies were done on yield losses due to weed infestation in barley fields. This was emphasized by many workers i.e. Ashton and Monaco (1992) reported that barley production is affected by weed competition which caused great losses in quantity and quality of barley grain yield. Chandler *et al.* (1984) reported that, the losses of crop was (9.3%) due to weeds competition

in barley. The control of weeds has always been one of the greatest resource consuming operations in crop production. Herbicides represent the greatest amount of pesticides applied to barley in terms of amount of active ingredient applied and percentage of treated feddan. Clarck (1987) indicated that the control of annual grassy weed as a further treatment with other selective herbicides is needed. The herbicide spray should only be applied if the weed density is sufficiently high, otherwise spraying is not necessary as the weeds will be unable to compete with the cereal (Chapron et al. 1999). Herbicide usage should be completely or partially phased out in the future, the development of new weed control strategies will be crucial (Christensen et al. 1999). Tribenuron-methyl as broad- leaved herbicide and clodinafoppropargyl as grassy weed herbicide used in wheat as a recommended weed herbicides can be used safety to barley for controlling annual broad-leaved and grassy weeds effectively. Muntan (1987) indicated that tribenuron-methyl had a wide range efficacy on controlling annual broad-leaved weed in cereals i.e. wheat and barley. Kholousy and Nasser (2003) found that metribuzin, metosulam and tribenuron-methyl herbicides controlled annual broad-leaved weeds by an averages of 99.2 & 95.9% and increased barley grain yield by 9.843 & 9.102 ardab/fed in 1997/98 and 1998/99 seasons, respectively. On the other hand, metosulam followed by clodinafop - propargyl gave the highest significant reduction of the number and fresh weight of both annual broad- leaved and grassy weeds in both 1999/2000 and 2000/01 seasons. Moshtohry and Daie (2007) reported that tribenuron-methyl followed by clodinafop-propargyl reduced fresh weight of total annual weeds by (95.8 and 98.1%) and by (95.2 and 92.9%) at 60 and 90 (DAS), respectively, and significantly increased grain yield by 54.9 and 55.3% in the first and second seasons, respectively as compared to untreated check.

MATERIALS AND METHODS

Two field experiments were conducted at Ismailia Agricultural Research Station during 2004/05 and 2005/06 winter seasons to study the effect of two varieties of barley, four methods of applying fertilizer and five weed control treatments on the fresh weights of annual broad - leaved, grassy and total annual weeds (g/m^2) as well as on growth characters, yield and its components of barley.

The treatments were arranged in split split plot design with four replication. The two barley varieties were arranged in the main plots while, applying fertilizer were assigned in the sub plots and weed control treatments were devoted in the sub sub plots as follows:-

A – Main plots (varieties):

1- Giza126 (hulled variety). **2-**.Giza129 (hull-less variety).

B – Sub plots: (Bio-fertilizers and Nitrogen fertilization applications):

Nitrogen levels used were 50, 70 and 90 kg N/fed in the form of ammonium nitrate (33.5%). Fertilizers were divided to six equal doses the first dose applied at sowing and the others five doses every week.

The bio-fertilizers was *Bacillus polymyxa* namely Cerealin [25% fine peat; 75% vermiculite; *Azospirillum brasilense* isolate NO.40 (about 10⁹)

cells/g); 5% Ca Co₃ as pH buffer] Prior to sowing, grain inoculation was carried out using lab prepared Cerealin containing efficient nitrogen fixing bacteria. Inoculation was performed by mixing grains with appropriate amount of Cerealin using Arabic gum for 30 minutes just before sowing and irrigation is took place immediately after sowing. *Bacillus polymyxa* kindly provided by Bio-fertilizer Production Unit, Soils, Water and Environment Research Institute, ARC, Giza, Egypt.

The rates of applying fertilizer were as follows:

- 1 Mineral fertilizer 90 kg N/fed without bio-fertilizer (Uninoculated)
- 2 Bio fertilizer (*Inoculation with B. polymyxa) plus mineral fertilizer 90 kg N/fed.
- 3 Bio fertilizer plus mineral fertilizer 70 kg N/fed.
- 4 Bio fertilizer plus mineral fertilizer 50 kg N/fed.

B - Sub sub plots (weed control treatments):-

1 - Florasulam 75 + Flumetsulam 100 g/L: {N- (2,6-difluorophenyl) -8fluoro -5- methoxy [1,2,4] triazolo [1,5-c] pyrimidine -2- sulfonamide + N-(2,6difluorophenyl) -5- methyl [1,2,4] triazolo [1,5-a] pyrimidine -2- sulfonamide} known commercially as Derby 17.5% SC at the rate of 5.25 cc (a.i)/fed at 20 to 25 days after sowing. (one day before first irrigation) followed by clodinafop-propargyl [2- propynyl (R) -2- [4- (5- chloro -3- fluoro pyridinyloxy), known commercially as Topik 15% WP at the rate of 21 g (a.i)/fed at 40 days after sowing.

2 - Thifensulfuron-methyl + Metsuluron-methyl (68.2+6.8%): {Methyl 3- [[[(4- methoxy -6- methyl - 1,3,5 - triazin-2-yl) amino]carbonyl]amino] sulfonyl] -2- thiophenecarboxylate + Methyl 2- [[[[(4 - methoxy -6- methyl -1,3,5 - triazin -2 - yl) amino] carbonyl] amino] sulfonyl] benzoate} known commercially as Harmony M 75% at the rate of 18 g (a.i)/fed at 2 to 4 leaf stage for barley followed by clodinafop-propargyl at the rate of 21 g (a.i)/fed at 40 days after sowing.

3 - Tribenuron methyl: {Methyl (2-[[[(4- methoxy -6- methyl - 1, 3,5 - triazin - 2 - yl) methylamino] carbonyl] amino] sulfonyl] benzoate)} known, commercially as Granstar 75% DF at the rate of 6 g (a.i)/fed immediately after the complete of germination stage followed by clodinafop-propargyl at the rate of 21 g (a.i)/fed at 40 days after sowing.

4 - Hand weeding twice at 30 and 45 days after sowing.

5 - Untreated check (weedy check)

Soil mechanical and chemical at both seasons are described in Table (A) according to Jackson (1973).

The sub – sub plot area was 10.5 m² (3.5 m length and 3.0 m width). Barley seeds of Giza 126 and 129 varieties were sown by drilling method on 29th and 25th November in the first and second seasons, respectively. The grains of barley varieties were hand planted at the rate of 50 kg /fed. The preceding crop was groundnut (*Arachis hypogeae* L.) in both seasons. All herbicidal treatments were sprayed with a knapsack sprayer and water volume of 200 L/fed. Other cultural practices of growing barley were conducted according to the crop recommendations.

Analysis	Seasons				
Allalysis	2004/05	2005/06			
Physical analysi	S				
Coarse sand	60.8	61.2			
Fine sand	33.7	34.1			
Silt and clay	5.5	4.7			
Soil texture	Sandy	Sandy			
Chemical analys	is				
PH	7.51	7.32			
EC (m mohs / cm) at 25°C	0.24	0.37			
O.M. (%)	0.38	0.32			
CaCO ₃ (%)	1.62	1.75			
Avalable soluble (p	pm)				
N	22.7	27.53			
P	5.48	6.45			
К	56.30	59.20			

Table (A): Mechanical and chemical analysis of the soil at the experimental site.

Data recorded:

A- Weed.

At 70 and 100 days of sowing barley, weeds were removed by hand pulling from 1 m² taken at random of each plot and classified into species according to Tackholm (1974). The fresh weight (g) for each weed classes was estimated Im^2 and recorded as follows:

1 - Annual broad - leaved weeds.

2 - Annual grassy weeds.

3 - Total annual weeds.

B- Yield and its components.

At harvest time, on 10 and 8 of May in 2004/05 and 2005/06 seasons, respectively, ten samples plants were taken randomly from the two central rows of each sub-sub plot to determine

1 - Plant height (cm).

2 - Spike length (cm)

4 - Number of grains /spike.

6 - Weight of grains / spike (g).

5 - Weight of spike / plant (g) 7 - Weight of 1000 - grain (g)

3 - Number of spikes / plant

Grain and straw yields were determined from each plot as follows:

1 -Seed yield (ardab/fed). (Ardab =120 kg)

2-Straw yield (ton/fed)

Statistical analysis:-

Data obtained were subjected to statistical analysis according to Snedecor and Cochran (1981) and the Least Significant Differences (LSD) at 5% level of significance was calculated.

RESULTS AND DISCUSSION

I- Effect of varieties, fertilizers, weed control treatments and their interactions on fresh weights (g/m^2) of annual weeds at 70 and 100 DAS in 2004/05 and 2005/06 seasons.

Weed assessment shows that, predominate weed species in the experimental site in both seasons were *Ammi majus* L., *Anagallis arvensis* L., *Emex spinosus* L., *Medicago spp.*, *Melilotus indica* L., *Sinapis arvensis* L. and

Sonchus oleraceus L. as annual broad – leaved weeds as well as *Lolium spp.* and *Avena fatua* L. as annual grassy weeds.

A- Effect of varieties on annual weeds.

Data in Table 1 show that varieties had no significant effect on the fresh weights of annual broad - leaved, grassy and total annual weeds at 70 and 100 (DAS) in the first and second seasons. These results are not in agreement with those obtained by Moshtohry and Daie (2007) who reported that, the new hull - less Giza 129 variety gave the lowest fresh weight of annual broad-leaved and total annual weeds compared to Giza 123 hulled variety at 90 days in one season only.

Table	1: Effect of	varieties on	the fresh	weights o	f broad	- leaved,
	grassy and	total annual	weeds (g/	/m²) at 70	and 100	(DAS) in
	2004/05 and	2005/06 seas	ons.			

Va	riotion	Broad – leaved (g/m ²)		Gra (g/ı	Grassy (g/m²)		weeds m²)
Va	70 *(DAS)	100 (DAS)	70 (DAS)	100 (DAS)	70 (DAS)	00 (DAS)	
2004/05 season							
Giz	173.7	166.7	169.9	104.9	343.6	271.6	
Giza 129		173.3	109.4	168.2	113.3	341.5	222.7
N	lean	173.5	138.1	169.1	109.1	342.6	247.2
			2005/0)6 season			
Giz	za 126	239.4	200.3	165.5	137.0	404.9	337.3
Giz	za 129	145.0	142.0	200.0	148.9	345.0	290.9
N	192.2	171.2	182.8	143.0	375.0	314.1	
LSD at 5% level	2004/05 season	NS	NS	NS	NS	NS	NS
	2005/06 season	NS	NS	NS	NS	NS	NS

*Days after sowing = (DAS)

B- Effect of fertilizers on annual weeds.

Data in Table 2 show that applying fertilizers affected significantly the fresh weights of annual broad - leaved weed at 70 and 100 (DAS) in the first and second seasons, grassy at 100 (DAS) in the first season and 70 and 100 (DAS) in the second season as well as total annual weeds at 100 (DAS) in the first and second seasons. Applying mineral fertilizer 90 kg N/fed without bio - fertilizer gave the highest reduction in the fresh weight of annual broad leaved weed by 38.7 and 40.8% at 70 and 100 (DAS), respectively, as compared to 50 kg N/fed plus bio - fertilizer and 90 kg N/fed plus bio fertilizer ,respectively, in the first season. In the second season, applying mineral fertilizer 90 kg N/fed without bio - fertilizer gave the highest reduction in the fresh weight of annual broad - leaved weed by 26.4% at 70 (DAS) as compared to applying mineral fertilizer 70 kg N/fed plus bio-fertilizer. Applying treatment mineral fertilizer 70 kg N/fed plus bio - fertilizer gave the highest reduction in the fresh weigh of annual broad - leaved weed by 34.3 % at 100 (DAS) as compared to applying mineral fertilizer 50 kg N/fed plus biofertilizer. In the first season at 100 (DAS) applying mineral fertilizer 90 kg N/fed without bio - fertilizer gave the highest reduction in the fresh weight of annual grassy weed by 26.4% as compared to applying mineral fertilizer 70

kg N/fed plus bio-fertilizer. In the second season applying mineral fertilizer 90 kg N/fed without bio – fertilizer gave the highest reduction in the fresh weight of annual grassy weed by 31.9 and 46.1% at 70 and 100 (DAS), respectively, as compared to applying mineral fertilizer 50 kg N/fed plus bio-fertilizer. For fresh weight of total annual weeds at 100 (DAS) applying mineral fertilizer 90 kg N/fed without bio - fertilizer gave the highest reduction by 31.5% as compared to applying mineral 50 kg N/fed plus bio-fertilizer in the first season and applying mineral fertilizer 90 kg N/fed plus bio-fertilizer gave the highest reduction in the fresh weight of total annual weeds by 39.4% as compared to applying mineral 50 kg N/fed plus bio-fertilizer in the second season. These results are in agreement with those obtained by EI - Badry (1995), who indicated that the dry weight of annual broad - leaved, grassy and total weeds decreased with increasing N levels in both seasons.

C- Effect of weed control treatments on annual weeds.

Data in Table 3 show that all herbicidal treatments gave significant effect on the fresh weights of broad – leaved, grassy and total annual weeds at 70 and 100 (DAS) in the first and second seasons. Applying florasulam 75 + flumetsulam 100 g/L at the rate of 5.25 cc (a.i)/fed followed by clodinafop-propargyl at the rate of 21 g (a.i)/fed was the most effective treatment in controlling the fresh weight of annual broad - leaved weed 70 (DAS) and giving by 96.3% control as compared to untreated check in the first season. The same treatment or thifensulfuron - methyl + metsuluron - methyl (68.2 + 6.8%) at the rate of 18 g (a.i)/fed followed by clodinafop - propargyl at the rate of 21 g (a.i)/fed were effective on controlling the fresh weight annual broad - leaved weed by 97.7% as compared to untreated check 70 (DAS) in the second season.

Table 2: Effect of fertilizers on the fresh weights of broad - leaved, grassy and total annual weeds (g/m²) at 70 and 100 (DAS) in 2004/05 and 2005/06 seasons.

E a utiliza	Fortilizors			Gra: (g/r	ssy n²)	Total v (g/r	Total weeds (g/m ²)		
Fertilize	ers	70 *(DAS)	100 (DAS)	70 (DAS)	100 (DAS)	70 (DAS)	100 (DAS)		
		2004/0	5 season						
90 kg N/fed without	t bio – fertilizer	126.3	100.5	172.2	103.6	298.5	204.1		
90 kg N/fed plus bio	o – fertilizer	170.3	169.7	185.5	107.1	355.8	276.8		
70 kg N/fed plus bio	o – fertilizer	191.4	117.3	169.8	140.7	361.2	258.0		
50 kg N/fed plus bio	o – fertilizer	206.0	168.8	148.7	130.3	354.7	299.1		
Mea	n	173.5	139.1	169.1	120.4	342.6	259.5		
		2005/	06 seaso	n					
90 kg N/fed without	t bio – fertilizer	170.7	164.2	169.6	116.7	340.3	280.9		
90 kg N/fed plus bio	o – fertilizer	177.6	148.7	154.6	103.7	332.2	252.4		
70 kg N/fed plus bio	o – fertilizer	231.8	147.3	179.9	158.9	411.7	306.2		
50 kg N/fed plus bio	191.0	224.1	227.0	192.4	418.0	416.5			
Mea	192.8	171.1	182.8	142.9	375.6	314.0			
LSD at 5% level 2	2004/05 season	NS	34.8	NS	NS	NS	NS		
2	2005/06 season	NS	NS	NS	36.2	NS	61.0		

*Days after sowing = (DAS)

	Rate	Broad (g	– leaved /m²)	Gra (g/	ssy m²)	Total (g/	weeds m²)
Weed control treatments	a.i /fed	70 *(DAS)	100 (DAS)	70 (DAS)	100 (DAS)	70 (DAS)	100 (DAS)
	2004/05	seasor	۱				
*1- Florasulam 75 + Flumetsulam 100 g/L	5.25 cc	21.7	23.3	50.7	39.8	72.4	63.1
*2- Thifensul methyl + etasuluron (68.2+6.8%)	18 g	29.8	23.0	42.3	37.1	72.1	60.1
*3- Tribenuron-methyl	6 g	38.9	10.6	33.7	23.0	72.6	33.6
4- Hand weeding twice		185.9	110.1	169.5	135.7	355.4	245.8
5- Untreated check		591.2	528.3	549.1	366.6	1140.3	894.9
Mean		173.5	139.1	169.1	120.4	342.5	259.5
2005/06 season							
*1- Florasulam 75 + Flumetsulam 100g/L	5.25 cc	17.7	40.9	48.7	32.5	66.4	73.4
*2- Thifensul methyl + etasuluron (68.2+6.8%)	18 g	17.7	30.5	58.0	43.0	75.7	73.5
*3- Tribenuron-methyl	6 g	43.0	11.3	45.1	14.4	88.1	25.7
4- Hand weeding twice		147.4	166.7	193.2	155.1	340.6	321.8
5- Untreated check		737.9	606.1	568.6	469.6	1306.5	1075.7
Mean		192.7	171.1	182.7	142.9	375.4	314.0
LSD at 5% level							
2004/05 season		36.1	37.8	44.8	30.6	58.9	51.2
2005/06 season		53.8	54.0	41.7	33.9	73.4	59.7

Table 3: Effect of weed control treatments on the fresh weights of broad - leaved, grassy and total annual weeds (g/m²) at 70 and 100 (DAS) in 2004/05 and 2005/06 seasons.

*Days after sowing = (DAS)

* 1, 2 and 3 plus clodinafop-propargyl at rate 21 g (a.i) / fed.

Tribenuron - methyl at the rate of 6 g (a.i)/fed followed by clodinafop propargyl at the rate of 21 g (a.i)/fed was the most effective superior treatment in controlling the fresh weight of annual broad - leaved weed by 97.8 and 98.1%, respectively, as compared to untreated check 100 (DAS) in the first and second seasons. Also, the same treatment gave reduction in controlling the fresh weight of annual grassy weed by (93.9 & 92.1%) and (93.7 & 96.9%), respectively, as compared to untreated check at 70 and 100 (DAS) in the first and second seasons. Tifensulfuron - methyl + metsuluron methyl (68.2+6.8%) at the rate of 18 g (a.i)/fed was the most effective superior treatment in controlling the fresh weight of total annual weeds 70 (DAS) by 98.6 and 94.2%, respectively, as compared to untreated check in the first season. Tribenuron - methyl at the rate of 6 g (a.i)/fed followed by clodinafop - propargyl at the rate of 21 g (a.i)/fed gave the highest reduction on total annual weeds by 96.2 and 97.6%, respectively, as compared to untreated check in the both seasons 100 (DAS). These results are in agreement with those obtained by Kholousy and Nasser (2001 and 2003) and Moshtohry and Daie (2007).

D- Effect of the interactions between varieties, fertilizers and weed control treatments on annual weeds.

D-1- Effect of the interaction between varieties and fertilizers on annual weeds.

Data in Table 4 show the interaction between barley varieties and applying fertilizers had a significant effect in the fresh weight annual broad -

leaved weeds 70 (DAS) and grassy weeds 70 and 100 (DAS) in the first season as well as in the fresh weight of broad-leaved at 70 and 100 (DAS) and total annual weeds 100 (DAS) in the second season. Giza 129 variety treated with mineral fertilizer 90 kg N/fed without bio - fertilizer gave the highest reduction (i.e. 56.5%) the fresh weight of annual broad - leaved weed 70 (DAS) as compared to Giza 129 variety with 50 kg N/fed plus bio - fertilizer in the first season. Giza 129 variety treated with mineral fertilizer 90 kg N/fed without bio - fertilizer gave the highest reduction (i.e. 65.4 and 84.2%) respectively, in the fresh weight of annual broad- leaved weed at 70 and 100 (DAS) as compared to Giza 126 variety treated with 50 kg N/fed plus bio fertilizer in the second season. Giza 129 variety treated with mineral fertilizer 70 kg N/fed plus bio - fertilizer gave the highest reduction in the fresh weight of annual grassy weed (i.e. 50.6%) as compared to Giza 126 variety with 50 kg N/fed plus bio - fertilizer 70 (DAS) and Giza 129 variety treated with mineral fertilizer 90 kg N/fed plus bio - fertilizer gave the highest reduction in the fresh weight of annual grassy weed (i.e. 44.7%) as compared to Giza 126 variety with 50 kg N/fed plus bio - fertilizer 100 (DAS) in the second season.

Table 4: Effect of varieties and fertilizers on the fresh weights of broad – leaved, grassy and total annual weeds (g/m²) at 70 and 100 (DAS) in 2004/05 and 2005/06 seasons.

S		Broad -	leaved	Gra	ISSV	Total	weeds
itie	Fortilizano	(g/r	n²)	(g/	m²)	(g/	m²)
irie	Fertilizers	70	100	70	100	70	100
۲a		(DAS)	(DAS)	DAS)	(DAS)	(DAS)	(DAS)
	•	004/05 s	eason				
9	90 kg N/fed without bio - fertilizer	148.0	127.3	135.8	102.4	283.8	229.7
42	90 kg N/fed plus bio – fertilizer	231.2	190.9	152.4	124.0	383.6	314.9
iza	70 kg N/fed plus bio – fertilizer	143.6	157.7	227.3	120.9	370.9	278.6
G	50 kg N/fed plus bio – fertilizer	172.1	199.2	164.0	162.8	336.1	362.0
	Mean	173.7	168.8	169.9	127.5	343.6	296.3
	90 kg N/fed without bio –						
29	fertilizer	104.7	73.9	208.6	104.9	313.3	178.8
a,	90 kg N/fed plus bio – fertilizer	109.4	148.5	218.6	90.1	328.0	238.6
Giz	70 kg N/fed plus bio – fertilizer	239.2	76.7	112.3	160.5	351.5	237.2
	50 kg N/fed plus bio – fertilizer	239.8	138.4	133.5	97.8	373.3	236.2
	Mean	173.3	109.4	168.3	113.3	341.5	222.7
		2005/06	season				
56	90 kg N/fed without bio - fertilizer	249.0	66.3	130.8	101.5	379.8	167.8
Ξ	90 kg N/fed plus bio – fertilizer	208.7	245.6	128.4	110.9	337.1	356.5
iza	70 kg N/fed plus bio – fertilizer	233.3	150.5	172.6	164.4	405.9	314.9
G	50 kg N/fed plus bio – fertilizer	266.7	328.5	230.2	171.0	496.9	499.5
	Mean	239.4	197.7	165.5	137.0	404.9	334.7
29	90 kg N/fed without bio – fertilizer	92.3	262.1	208.1	131.9	300.4	394.0
-	90 kg N/fed plus bio – fertilizer	146.4	51.8	180.7	96.4	327.1	148.2
ijŻ	70 kg N/fed plus bio – fertilizer	230.2	134.1	187.3	153.3	417.5	287.4
0	50 kg N/fed plus bio – fertilizer	115.2	119.7	223.8	213.9	339.0	333.6
	Mean	146.0	141.9	200.0	148.9	346.0	290.8
LSD	at 5% level 2004/05 season	58.4	NS	NS	NS	NS	NS
1	2005/06 season	NS	79.0	NS	NS	NS	86.3

*Days after sowing = (DAS)

Giza 129 variety treated with mineral fertilizer 90 kg N/fed plus bio – fertilizer gave the highest reduction in the fresh weight of total annual weeds (i.e. 70.3%) as compared to Giza 126 variety with 50 kg N/fed plus bio – fertilizer 100 (DAS) in the second season.

D-2- Effect of the interaction between varieties and weed control treatments on annual weeds.

Data in Table 5 show the interaction between barley varieties and weed control treatments had a significant effect on the fresh weight of annual broad – leaved weed 70 and 100 (DAS), grassy 100 (DAS) and total annual weeds 70 and 100 (DAS) in the first season.

Table	5: Effect	of varieties	and weed	control	treatments	on the	fresh
	weights	of broad – I	eaved, gras	ssy and to	otal annual	weeds	(g/m²)
	at 70 an	d 100 (DAS)	in 2004/05 a	and 2005/	/06 seasons	5.	

eties	Sector Fertilizers		Broa leav (g/r	ad – /ed n2)	Gra (g/	ssy m2)	To wee (g/i	tal eds n2)
Vario		/fed	70	100	70	100	70	100
_			*(DAS)	(DAS)	(DAS)	(DAS)	(DAS)	(DAS)
				2004	4/05 se	ason		
6	*1- Florasulam 75 + Flumetsulam 100 g/L	5.25 cc	31.2	24.0	48.3	24.3	79.5	48.3
126	*2- Thifensul methyl + Metasuluron (68.2+6.8%)	18 g	47.3	24.4	45.4	25.0	92.7	49.4
, M	*3- Tribenuron-methyl	6 g	56.4	13.2	34.3	22.5	90.7	35.7
<u>G</u>	4- Hand weeding twice		208.7	142.8	168.0	98.5	376.7	241.3
	5- Untreated check		525.2	639.3	553.4	354.0	1078.6	993.3
	Mean		173.8	168.7	169.9	104.9	343.6	273.6
_	*1- Florasulam 75 + Flumetsulam 100 g/L	5.25 cc	12.2	22.5	53.1	50.6	65.3	73.1
120	*2- Thifensul methyl + Metasuluron (68.2+6.8%)	18 g	12.3	21.7	39.1	43.4	51.4	65.1
g	*3- Tribenuron-methyl	6 g	21.5	8.1	33.2	28.0	54.7	36.1
G	4- Hand weeding twice		163.1	77.4	171.0	125.4	334.1	202.8
	5- Untreated check		657.2	417.3	544.8	319.4	1202.0	736.7
	Mean		173.3	109.4	168.2	113.4	341.5	222.8
	2005/06	seaso	n	1	1			
6	*1- Florasulam 75 + Flumetsulam 100 g/L	5.25 cc	11.7	61.9	36.2	37.4	47.9	99.3
12(*2- Thifensul methyl + Metasuluron (68.2+6.8%)	18 g	29.4	45.7	40.9	47.1	70.3	92.8
za	*3- Tribenuron-methyl	6 g	37.9	18.4	34.6	15.0	72.5	33.4
G	4- Hand weeding twice		136.0	253.4	165.0	132.8	301.0	386.2
	5- Untreated check		982.2	621.9	550.7	452.5	1532.9	1074.4
	Mean		239.4	200.3	165.5	137.0	404.9	337.2
6	*1- Florasulam 75 + Flumetsulam 100 g/L	5.25 cc	23.5	20.0	61.2	27.6	84.7	47.6
12	*2- Thifensul methyl + Metasuluron (68.2+6.8%)	18 g	6.0	15.4	75.2	38.9	81.2	54.3
za	*3- Tribenuron-methyl	6 g	48.1	4.2	55.6	13.8	103.7	18.0
G	4- Hand weeding twice		158.9	79.9	221.5	1//.4	380.4	257.3
	5- Untreated check		493.7	590.0	586.4	486.8	1080.1	1076.8
⊢.			146.0	141.9	200.0	148.9	346.0	290.8
			31.1 76.0	03.0 76.4	NO NO	43.Z	112.0	12.4 NG
* 1	2000/00 season	21 a (2	10.0 i) / fod	10.4	112	112	103.8	112
_ ' ,	z and 5 plus clouinalop-propargyl at fale	∠ıy(a	ij/ieu.					

Also, on the fresh weight of annual broad – leaved 70 and 100 (DAS) and total annual weeds 70 (DAS) in the second season. Treating Giza 129

variety with florasulam 75 + flumetsulam 100 g/L at the rate of 5.25 cc (a.i)/fed or thifensulfuron - methyl + metsuluron - methyl (68.2+6.8%) at the rate of 18 g (a.i)/fed followed by clodinafop - propargyl at the rate of 21 g (a.i)/fed. gave the highest reduction (i.e. 98.1%) in the fresh weight of annual broad – leaved weed as compared to Giza 129 variety with untreated check 70 (DAS) in the first season. Giza 129 variety when treated with tribenuron - methyl at the rate of 6 g (a.i)/fed followed by clodinafop - propargyl at the rate of 21 g (a.i)/fed gave the highest reduction (i.e. 93.6%) in the fresh weight of annual broad – leaved weed as compared to Giza 126 variety with untreated check 100 (DAS) in the first season. Also, treating Giza 126 variety with the same treatment gave the highest reduction (i.e. 98.7%) in the fresh weight of annual grassy weed as compared to Giza 126 variety with untreated check 100 (DAS) in the first season.

Applying Giza 129 variety with thifensulfuron - methyl + metsuluronmethyl (68.2+6.8%) at the rate of 18 g (a.i)/fed followed by clodinafop propargyl at the rate of 21 g (a.i)/fed. gave the highest reduction (i.e. 95.7%) in the fresh weight of total annual weed as compared to Giza 129 variety with untreated check 70 (DAS) in the first season. Applying Giza 129 variety with tribenuron - methyl at the rate of 6 g (a.i)/fed followed by clodinafop propargyl at the rate of 21 g (a.i)/fed gave the highest reduction (i.e. 99.3%) in the fresh weight of total annual weeds as compared to Giza126 variety with untreated check at 100 (DAS) in the first season. Applying Giza 129 variety with thifensulfuron - methyl + metsuluron - methyl (68.2+6.8%) at the rate of 18 g (a.i)/fed followed by clodinafop - propargyl at the rate of 21 g (a.i)/fed gave the highest reduction (i.e. 98.7%) in the fresh weight of annual broad leaved weed as compared to Giza126 variety with untreated check 70 (DAS) in the second season. Applying Giza 129 variety with tribenuron - methyl at the rate of 6 g (a.i)/fed followed by clodinafop - propargyl at the rate of 21 g (a.i)/fed gave the highest reduction (i.e. 99.3%) in the fresh weight of annual broad - leaved weed as compared to Giza 126 variety with untreated check 100 (DAS) in the second season. Applying Giza 126 variety florasulam 75 + flumetsulam 100 g/L at the rate of 5.25 cc (a.i)/fed followed by clodinafop propargyl at the rate of 21 g (a.i)/fed gave the highest reduction (i.e. 96.9%) in the fresh weight of total annual weed as compared to Giza 126 variety with untreated check 100 (DAS) in the second season. These results are in agreement with those obtained by Moshtohry and Daie (2007).

D-3- Effect of the interaction between fertilizers and weed control treatments on annual weeds.

Data in Table 6 show the between applying fertilizers and weed control treatments affected significantly the fresh weights of annual broad – leaved, grassy and total annual weeds 70 and 100 (DAS) in the first season as well as and on the fresh weight of annual broad – leaved at 70 and 100 (DAS), grassy and total annual weeds 100 (DAS) in the second season.

r				1				
Fertili-	Weed control treatments	Rațe	Bro lea	ad – ved m2)	Gra	issy m2)	Total	weeds
zers	weed control treatments	a.i	70	100	70	100	70	100
		neu	*(DAS)	(DAS)	(DAS)	(DAS)	(DAS)	(DAS)
			Z	004/03	season			
90 kg	*1- Florasulam 75 + Flumetsulam 100 g/L	5.25 cc	4.8	33.3	68.4	28.9	73.2	62.2
N/fed	*2- Thifensul methyl + Metasuluron (68.2+6.8%)	18 g	14.3	22.4	52.3	29.4	66.6	51.8
without	*3- Tribenuron-methyl	6 g	17.9	7.8	32.2	13.6	50.1	21.4
bio –	 Hand weeding twice 	_	138.8	95.2	127.6	112.0	266.4	207.2
fertilizer	5- Untreated check		455.9	343.8	580.7	334.3	1036.6	678.1
	Mean		126.3	100.5	172.2	103.6	298.6	204.1
	*1- Florasulam 75 + Flumetsulam 100 g/l	5 25 cc	17.3	28.2	35.8	38.8	53.1	67.0
90 kg	*2 Thifongul mothyl + Motoguluron	5.25 00	17.5	20.2	55.0	50.0	55.1	07.0
N/fed		18 g	54.0	20.0	10.3	10.3	73 3	60.3
plus	*2 Tribonuron mothul	6 0	20.0	10 5	22.1	27 4	61 1	20.0
bio –	3- Indenuion-meury	бÿ	29.0	12.0	32.1	27.4	200.4	39.9
fertilizer	4- Hand weeding twice		151.Z	101.9	158.2	128.8	309.4	230.7
	5- Untreated check		600.2	676.9	682.3	300.1	1282.5	977.0
	Mean		170.3	169.7	185.5	107.1	355.9	276.8
	*1- Florasulam 75 + Flumetsulam 100 g/L	5.25 cc	26.2	13.9	38.8	61.8	65.0	75.7
70 kg	*2- Thifensul methyl + Metasuluron	10 ~						
N/fed	(68.2+6.8%)	18 g	28.0	14.6	44.5	49.1	72.5	63.7
plus	*3- Tribenuron-methyl	6 a	65.9	7.2	29.8	33.1	95.7	40.3
bio –	4- Hand weeding twice	- 3	250.9	95.3	178.8	196.9	429 7	292.2
rentilizer	5- Untreated check		596 1	455 A	557 3	362.0	1153 4	818 3
	Moon		102.4	117.2	160.0	140.0	262.2	259.0
	1016dil	E 0E 00	20 7	167	T09.0	20.0	303.3 00 G	200.0
50 kg	*1- Florasulam 75 + Flumetsulam 100 g/L	5.25 CC	30.7	10.7	59.9	29.0	90.0	40.5
N/fed	"2- Thitensul methyl + Metasuluron	18 a	00.0	00.0	50.0	00.0	75 0	FF 0
plus	(68.2+6.8%)		22.9	20.3	53.0	29.6	75.9	55.9
bio –	*3- Tribenuron-methyl	6 g	52.9	15.2	41.0	18.2	93.9	33.4
fertilizer	4- Hand weeding twice		202.7	148.1	213.6	105.1	416.3	253.2
	5- Untreated check		712.7	638.0	376.2	469.2	1088.9	1107.2
	Mean		206.0	168.9	148.7	130.4	354.7	299.2
	2005	/06 sea	ason					
	*1- Florasulam 75 + Flumetsulam 100 g/l	5 25 cc	20.2	18.6	59.3	27.8	79.5	46 4
90 kg	*2- Thifensul methyl + Metasuluron	0.20 00	20.2	10.0	00.0	27.0	10.0	10.1
N/fed	$(68.2\pm6.8\%)$	18 g	16.3	12.2	45.6	28.8	61 9	41 0
without	*2 Tribonuron mothyl	6 0	5 4	77	46.7	5.6	52.1	12.2
bio –	4 Hond wooding twice	υÿ	02.0	02.0	40.7	125.0	271 0	210 5
fertilizer	4- Hallu weeding twice		93.9	93.9	517.0	120.0	27 1.0 1005 F	219.0
	5- Untreated check		/1/.6	688.9	517.9	396.1	1235.5	1085.0
	Mean		170.7	164.3	169.5	116.8	340.2	281.0
00.1.5	*1- Florasulam 75 + Flumetsulam 100 g/L	5.25 cc	23.9	17.8	42.2	18.8	66.1	36.6
90 Kg	*2- Thifensul methyl + Metasuluron	18 a						
	(68.2+6.8%)	io y	26.8	14.9	31.2	35.1	58.0	50.0
pius	*3- Tribenuron-methyl	6 g	28.8	12.2	26.5	3.8	55.3	16.0
fortilizor	4- Hand weeding twice	U	203.5	211.7	121.9	136.3	325.4	348.0
rerunzer	5- Untreated check		604.8	487.2	551.1	324.4	1155.9	811.6
	Mean		177 6	148.8	154.6	103.7	332.1	252.4
	*1- Florasulam 75 + Flumetsulam 100 g/l	5 25 cc	10.9	14 7	38.6	39.2	49.5	53.9
	*2. This assume that the suburger	0.20 00	10.0	1-7.7	00.0	00.2	40.0	00.0
70 kg	(68.2+6.8%)	18 g	20.2	33.3	68.0	49 5	88.2	82.8
N/fed	*2 Tribonuron mothul	6 0	02.2	50.0	55 0	10 5	120 0	22.0
plus	3- TIDenuron-metry	бÿ	100.7	100.2	000 F	10.0	100.0	20.9
bio –	4- Hand weeding twice		198.7	120.3	202.5	185.8	401.2	306.1
fertilizer	5- Untreated check		845.9	563.1	534.5	501.4	1380.4	1064.5
	Mean		231.6	147.4	179.9	158.9	411.5	306.2
	*1- Florasulam 75 + Flumetsulam 100 g/L	5.25 cc	15.7	112.8	54.7	44.4	70.4	157.2
50 ka	*2- Thifensul methyl + Metasuluron	18 0				l		
N/fed	(68.2+6.8%)	iðg	6.6	61.8	87.3	58.7	93.9	120.5
plus	*3- Tribenuron-methyl	6 g	55.7	20.1	51.5	29.8	107.2	49.9
bio –	4- Hand weeding twice	5	93.6	240.8	270.7	172.7	364.3	413.5
fertilizer	5- Untreated check		783.4	685.3	670.8	656.7	1454.2	1342.0
	Mean		191 0	224.2	227 0	192.5	418.0	416.6
100	at 5% level 2001/05 soosoo		72.2	75.6	00 G	61.2	117.7	102 /
LOD	2005/06 sesson		107 F	102 0	90.0 NC	67.0	NS	102.4
L	2003/00 3505011	*1 0 -	01.01		inofer	01.9		119.3
*Dava -	for coving $-(DAS)$	1, Z a	uiu s pi	us ciod	marop-	propar	yyı at fa	ale ZI
Days a	ner sowing = (DAS)	y (a.i) /	red.					

Table 6: Effect of fertilizers and weed control treatments on the fresh weights of
broad - leaved, grassy and total annual weeds (g/m²) at 70 and 100
(DAS) in 2004/05 and 2005/06 seasons.

Applying mineral fertilizer 90 kg N/fed without bio - fertilizer together with florasulam 75 + flumetsulam 100 g/L at the rate of 5.25 cc (a.i)/fed followed by clodinafop -propargyl at the rate of 21 g (a.i)/fed gave the highest reduction in the fresh weight of annual broad - leaved (i.e. 99.3%) as compared to 50 kg N/fed plus bio - fertilizer together with untreated check 70 (DAS) in the first season. Using mineral fertilizer 70 kg N/fed plus bio fertilizer with tribenuron - methyl at the rate of 6 g (a.i)/fed followed by clodinafop - propargyl at the rate of 21 g (a.i)/fed gave the highest reduction (i.e. 98.8%) in the fresh weight of annual broad - leaved as compared to 90 kg N/fed plus bio-fertilizer with untreated check 100 (DAS) in the first season. Applying mineral fertilizer 90 kg N/fed plus bio - fertilizer with thifensulfuron methyl + metsuluron - methyl (68.2+6.8%) at the rate of 18 g (a.i)/fed followed by clodinatop - propargyl at the rate of 21 g (a.i)/fed gave the highest reduction (i.e. 97.2%) in the fresh weight of annual grassy as compared to 90 kg N/fed plus bio-fertilizer with untreated check 70 (DAS) in the first season. Applying mineral fertilizer 90 kg N/fed without bio - fertilizer together with tribenuron - methyl at the rate of 6 g (a.i)/fed followed by clodinafop propargyl at the rate of 21 g (a.i)/fed gave the highest reduction in the fresh weights of grassy weed (i.e. 99.3%) as compared to 50 kg N/fed plus biofertilizer with untreated check 100 (DAS) as well as gave the highest reduction in the fresh weights of total annual weeds (i.e. 96.1 and 98.1%), respectively, as compared to 90 kg N/fed and 50 kg N/fed plus bio-fertilizer with untreated check at 70 and 100 (DAS) in the first season. Applying mineral fertilizer 90 kg N/fed without bio – fertilizer together with tribenuron - methyl at the rate of 6 g (a.i)/fed followed by clodinafop - propargyl at the rate of 21 g (a.i)/fed gave the highest reduction in the fresh weights of total annual weeds (i.e. 96.1 and 98.1%), respectively, as compared to 90 kg N/fed and 50 kg N/fed plus bio-fertilizer with untreated check at 70 and 100 (DAS) in the first season.

Applying mineral fertilizer 90 kg N/fed without bio - fertilizer with tribenuron - methyl at the rate of 6 g (a.i)/fed followed by clodinafop propargyl at the rate of 21 g (a.i)/fed gave the highest reduction in the fresh weight of annual broad – leaved weed (i.e. 99.4%) as compared to 70 kg N/fed plus bio-fertilizer with untreated check at 70 (DAS) in the second season. Using mineral fertilizer 70 kg N/fed plus bio - fertilizer with tribenuron - methyl at the rate of 6 g (a.i)/fed followed by clodinafop - propargyl at the rate of 21 g (a.i)/fed gave the highest reduction (i.e. 99.2%) in the fresh weight of annual broad - leaved as compared to 90 kg N/fed plus bio-fertilizer with untreated check 100 (DAS) in the second season. Applying mineral fertilizer 90 kg N/fed plus bio - fertilizer with tribenuron - methyl at the rate of 6 g (a.i)/fed followed by clodinafop - propargyl at the rate of 21 g (a.i)/fed gave the highest reduction (i.e. 99.4%) of the fresh weight of annual grassy weed as compared to mineral fertilizer 50 kg N/fed plus bio - fertilizer with untreated check 100 (DAS) in the second season. Applying mineral fertilizer 90 kg N/fed without bio - fertilizer with tribenuron - methyl at the rate of 6 g (a.i)/fed followed by clodinafop - propargyl at the rate of 21 g (a.i)/fed gave the highest reduction in the fresh weight of total annual weeds (i.e. 99.1%) as

compared to mineral fertilizer 50 kg N/fed plus bio-fertilizer with untreated check in the second season.

D-4-Effect of the interactions among varieties, fertilizers and weed control treatments on annual weeds.

Data in Tables 7a and 7b show the interactions among barley varieties, fertilizers and weed control treatments affected significantly the fresh weights of annual broad - leaved, grassy and total annual weeds 70 (DAS) in the first season as well as 70 and 100 (DAS) in the second season. The interaction among Giza 129 variety, mineral fertilizer 50 kg N/fed plus bio - fertilizer and thifensulfuron - methyl + metsuluron - methyl (68.2+6.8%) at the rate of 18 g (a.i)/fed followed by clodinafop - propargyl at the rate of 21 g (a.i)/fed gave the highest reduction in the fresh weight of annual broad - leaved weed (i.e.100%) as compared to Giza 129 variety with 50 kg N/fed plus bio fertilizer and untreated check 70 (DAS) in the first season. Interacting Giza 126 variety with mineral fertilizer 90 kg N/fed plus bio - fertilizer and tribenuron - methyl at the rate of 6 g (a.i)/fed followed by clodinafop propargyl at the rate of 21 g (a.i)/fed gave the highest reduction in the fresh weight of annual grassy weed reaching by 99.3% as compared to Giza 129 variety with 90 kg N/fed without bio-fertilizer and untreated check 70 (DAS) in the first season. The combination Giza 126 variety, mineral fertilizer 90 kg N/fed plus bio - fertilizer and florasulam 75 + flumetsulam 100 g/L at the rate of 5.25 cc (a.i)/fed followed by clodinafop - propargyl at the rate of 21 g (a.i)/fed gave the highest reduction in the fresh weight of total annual weed (i.e. 98.2%) as compared to Giza 126 variety with 90 kg N/fed plus bio fertilizer and untreated check 70 (DAS) in the first season. The interaction of Giza 129 varietiy with mineral fertilizer 70 kg N/fed plus bio - fertilizer and thifensulfuron -methyl + metsuluron - methyl (68.2+6.8%) at the rate of 18 g (a.i)/fed followed by clodinafop - propargyl at the rate of 21 g (a.i)/fed gave the highest reduction in the fresh weight of annual broad - leaved weed (i.e. 99.6%) and applying Giza 126 variety together the same bio - fertilizer and weed treatments gave the highest reduction in the fresh weights of annual grassy and total annual weeds (i.e. 99.8 and 99.5%), respectively, as compared to Giza 126 variety with 50 kg N/fed plus bio - fertilizer and untreated check 70 (DAS) in the second season. Giza 129 variety when integrated with mineral fertilizer 70 kg N/fed plus bio - fertilizer and tribenuron - methyl at the rate of 6 g (a.i)/fed followed by clodinafop - propargyl at the rate of 21 g (a.i)/fed gave the highest reduction in the fresh weight of annual broad - leaved weed (i.e. 99.9%) as compared to Giza 129 variety with mineral fertilizer. 90 kg N/fed without bio - fertilizer and untreated check at 100 (DAS) in the second season. The interaction of Giza 126 variety with mineral fertilizer 90 kg N/fed without bio – fertilizer and tribenuron - methyl at the rate of 6 g (a.i)/fed followed by clodinafop -propargyl at the rate of 21 g (a.i)/fed. gave the highest reduction in the fresh weight of annual grassy weed (i.e. 99.7%) as compared to Giza 129 variety with mineral fertilizer 50 kg N/fed plus bio - fertilizer and untreated check 100 (DAS) in the second season.

		Weed control	Rațe	Broa leaved	ad – (g/m²)	Gra (g/	ssy m²)	To Weeds	tal (g/m²)
Varieties	Fertiliz-ers	treatments	a.ı /fed	*(DAS)	100 (DAS)	70 (DAS)	100 (DAS)	70 (DAS)	100 (DAS)
	90 kg	*1- Florasulam 75 + Flumetsulam 100 g/L	5.25 cc	1.0	42.8	84.0	33.5	85.0	76.3
	without	Metasuluron (68.2+6.8%)	18 g	19.5	21.0	62.0	33.8	81.5	54.8
	bio –	*3- Tribenuron-methyl	6 g	21.8	9.0	34.0	4.5	55.8	13.5
	Terunzer	5- Untreated check		514.5	433.8	385.0	125.5 314.5	297.0 899.5	254.3 748.3
		Mean		148.0	127.1	135.8	102.4	283.8	229.4
	90 kg N/fed	*1- Florasulam 75 + Flumetsulam 100 g/L *2- Thitensul methyl +	5.25 cc	17.5	35.3	9.5	29.0	27.0	64.3
	plus	Metasuluron (68.2+6.8%)	18 g	70.0	37.0	23.5	40.8	93.5	77.8
	bio – fertilizer	*3- Tribenuron-methyl	6 g	31.0	8.5	5.3	29.3	36.3 300 6	37.8
9	Tertilizer	5- Untreated check		783.3	761.5	677.5	359.3	1460.8	1120.8
12		Mean		231.2	190.9	152.4	124.0	383.6	314.9
liza	70 kg	*1- Florasulam 75 + Flumetsulam 100 g/l	5.25 CC	34.0	10.5	38.3	30.0	72.3	40.5
0	N/fed plus	*2- Thifensul methyl + Metasuluron (68.2+6.8%)	18 g	54.0	13.0	44.0	13.3	98.0	26.3
	bio – fortilizor	*3- Tribenuron-methyl	6 g	98.8	9.5	33.0	9.8	131.8	19.3
	Terunzer	4- Hand weeding twice 5- Untreated check		200.5	99.3 656.3	261.8	159.0 392.5	462.3	258.3 1048.8
		Mean		143.6	157.7	227.3	120.9	370.9	278.6
	50 ka	*1- Florasulam 75 + Flumetsulam 100 g/L	5.25 cc	72.3	7.5	61.5	23.5	133.8	31.0
	N/fed	Metasuluron (68.2+6.8%)	18 g	45.8	26.5	52.0	35.3	97.8	61.8
	bio –	*3- Tribenuron-methyl	6 g	73.8	25.8	65.0	28.5	138.8	54.3
	tertilizer	4- Hand weeding twice		196.8	230.8	249.6	137.8	446.4 863.5	368.6
		Mean		172.1	199.2	163.9	162.8	336.1	362.3
	90 kg N/fed	*1- Florasulam 75 + Flumetsulam 100 g/l	5.25	85	23.8	52.8	24.3	61.3	48 1
		*2- Thifensul methyl +	18 a	9.0	23.8	42.5	25.0	51.5	48.8
	without bio –	*3- Tribenuron-methyl	6 a	14.0	6.5	30.3	22.5	44.3	29.0
	fertilizer	4- Hand weeding twice	° g	94.5	61.5	141.0	98.5	235.5	160.0
		5- Untreated check		397.3	253.8	776.3	354.0	1173.6	607.8
		*1- Florasulam 75 +	5 25	104.7	73.9	208.0	104.9	313.2	1/0./
	90 kg	Flumetsulam 100 g/L	CC	17.0	23.0	62.0	48.5	79.0	71.5
	N/fed plus	Metasuluron (68.2+6.8%)	18 g	38.0	21.0	15.0	39.8	53.0	60.8
	bio –	*3- Tribenuron-methyl	6 g	27.0	16.5	58.8	25.5	85.8	42.0
ი	Terunzer	4- Hand weeding twice 5- Untreated check		48.0 417.0	91.5 590.3	270.0 687.0	96.0 240.8	318.0	187.5 831.1
12		Mean		109.4	148.5	218.4	90.1	327.8	238.6
iza		*1- Florasulam 75 +	5.25	19.2	17.2	20.2	02.6	57.6	110.0
G	70 kg N/fed	*2- Thifensul methyl +	18 a	2.0	16.0	45 0	84.8	47.0	100.8
	plus	Metasuluron (68.2+6.8%)	fo g	12.0	10.0	26.5	56.2	20.5	61 1
	fertilizer	4- Hand weeding twice	θÿ	301.3	91.3	20.3 95.8	234.8	397.1	326.1
		5- Untreated check		861.3	254.5	355.0	333.3	1216.3	587.8
		Mean *1- Florasulam 75 +	5 25	239.2	/6./	112.3	160.6	351.5	237.3
	50 kg N/fed	Flumetsulam 100 g/L *2- Thifensul methyl +	CC	5.0	25.8	58.3	36.0	63.3	61.8
	plus	Metasuluron (68.2+6.8%)	ið ý	0.0	20.0	04.0	23.0	04.0	49.0
	fertilizer	4- Hand weeding twice	6 g	208.5	4.5 65.3	17.0 177.3	72.3	49.0 385.8	12.3
		5- Untreated check		953.3	570.5	360.3	349.3	1314.1	919.8
L	SD at 5%	Mean		239.8 102.1	138.4 NS	133.4	97.8 NS	373.1	236.3 NS

Table (7a): Effect of varieties, fertilizer and weed control treatments on the fresh weights of broad - leaved,grassy and total annual weeds (g/m²) at 70 (DAS) in 2004/ 05 season

* 1, 2 and 3 plus clodinafop-propargyl at rate 21 g (a.i) / fed.

10				Broa	ad –	Gra	SSV	L. Total	
ĕ				leaved	(g/m²)	(ġ/	m²)	Weeds	(g/m²)
Varieti	Fertilizers	Weed control treatments	Rate a.i /fed	70 *(DAS)	100 (DAS)	70 (DAS)	100 (DAS)	70 (DAS)	100 (DAS)
	00.1.5	*1- Florasulam 75 + Flumetsulam 100 g/l	5.25 cc	10.8	15.0	59.0	24.5	69.8	39.5
	90 kg N/fed	*2- Thifensul methyl +	18 a	25.0	10.0	45.8	38.8	70.8	49.6
	without	Metasuluron (68.2+6.8%)	fo g	20.0 E 0	0.0		222	62.2	43.0
	fertilizer	4- Hand weeding twice	ъg	100.0	9.8 85.0	155.0	2.3	255.0	185.8
		5- Untreated check		1104.3	211.0	336.0	341.3	1440.3	552.3
		Mean		249.0	66.3	130.8	101.5	379.8	167.9
	00.1.2	*1- Florasulam 75 + Flumetsulam 100 g/l	5.25 cc	8.0	15.3	21.0	18.0	29.0	33.3
	90 kg N/fed	*2- Thifensul methyl +	19 0	44.5	10.0	10.9	25.9	64.3	54.9
	plus	Metasuluron (68.2+6.8%)	10 y	44.5	19.0	19.0	35.0	04.5	04.0
	DIO – fertilizer	^3- Tribenuron-metnyl 4- Hand weeding twice	6 g	16.5 216.0	20.3	13.0	3.5	29.5	23.8
9	101111201	5- Untreated check		758.3	796.8	533.3	400.3	1291.6	1197.1
4		Mean		208.7	245.6	128.4	110.9	337.0	356.5
iza		*1- Florasulam 75 +	5.25 cc	0.0	10 E	10.0	20.2	10.2	E1 0
G	70 kg	*2- Thifensul methyl +		9.0	13.5	10.3	38.3	19.3	51.6
	plus	Metasuluron (68.2+6.8%)	18 g	38.8	53.5	64.0	41.5	102.8	95.0
	bio –	*3- Tribenuron-methyl	6 g	59.0	9.3	26.0	17.5	85.0	26.8
	iertilizer	4- Hand weeding twice		126.5	154.0	225.0	154.8	351.6	308.8
		Mean		233.3	160.5	172.5	164.4	405.7	324.9
		*1- Florasulam 75 +	5 25 00	200.0					02.110
	50 kg	Flumetsulam 100 g/L	5.25 00	19.0	203.8	54.3	68.8	73.3	272.6
	N/fed	Metasuluron (68 2+6 8%)	18 g	9.3	99.3	33.8	72.3	43.1	171.6
	bio –	*3- Tribenuron-methyl	6 g	71.0	34.3	41.0	36.8	112.0	71.1
	fertilizer	4- Hand weeding twice		101.3	397.8	225.3	178.8	326.6	576.6
		5- Untreated check		1133.0	907.5	796.5	498.3	1929.5	1405.8
		*1- Florasulam 75 +	5.05	200.7	320.3	230.2	171.0	490.9	499.3
	90 kg	Flumetsulam 100 g/L	5.25 CC	29.5	22.0	59.5	31.0	89.0	53.0
	N/fed	*2- Thitensul methyl + Metasuluron (68 2+6 8%)	18 g	7.5	13.5	45.3	18.8	52.8	32.3
	bio –	*3- Tribenuron-methyl	6 a	5.8	5.5	35.0	8.8	40.8	14.3
	fertilizer	4- Hand weeding twice	- 5	87.8	102.8	200.8	150.3	288.6	253.1
		5- Untreated check		330.8	1166.8	699.8	450.8	1030.6	1617.6
		Mean *1 Elorasulam 75 +		92.3	262.1	208.1	131.9	300.4	394.1
	90 ka	Flumetsulam 100 g/L	5.25 cc	39.8	20.3	63.3	19.5	103.1	39.8
	N/fed	*2- Thifensul methyl +	18 a	90	10.8	42 5	34.3	51.5	45 1
	plus bio –	*3- Tribenuron-methyl	60	41.0	4.0	40.0	4.0	81.0	8.0
	fertilizer	4- Hand weeding twice	σg	191.0	46.5	189.0	175.8	380.0	222.3
29		5- Untreated check		451.3	177.5	568.8	248.5	1020.1	426.0
- -		Mean	1	146.4	51.8	180.7	96.4	327.1	148.2
3iz	70 kg	Flumetsulam 100 g/L	5.25 cc	12.8	15.8	66.8	40.0	79.6	55.8
0	N/fed	*2- Thifensul methyl +	18 a	3.5	13.0	72.0	57.5	75.5	70.5
	plus	Metasuluron (68.2+6.8%)	lo g	105.0	10.0	05.5	10.5	100.0	21.0
	fertilizer	4- Hand weeding twice	ъg	270.8	1.5	00.0 180.0	19.5 216.8	450.8	21.0
		5- Untreated check		758.8	553.8	532.0	432.8	1290.8	986.6
		Mean		230.2	134.1	187.3	153.3	417.5	287.4
	50.1	*1- Florasulam 75 +	5.25 cc	12.2	21 0	55.0	20.0	67.2	/1 P
	50 kg	*2- Thifensul methyl +	40	12.3	21.0	0.00	20.0	07.5	41.0
I	plus	Metasuluron (68.2+6.8%)	18 g	3.8	24.3	140.8	45.0	144.6	69.3
I	bio – fertilizor	*3- Tribenuron-methyl	6 g	40.3	5.8	62.0	22.8	102.3	28.6
	ierunzei	4- Hand weeding twice		85.8 433.8	83.8 463.0	545.0	815.0	401.8 978.8	250.3 1278 0
		Mean	I	115.2	119.7	223.8	213.9	339.0	333.6
	LSD at 5% I	evel		152.1	152.8	123.4	96.0	224.1	168.7

Table (7b):Effect of varieties, fertilizer and weed control treatments on the fresh weights of broad - leaved, grassy and total annual weeds (g/m2) at 70 (DAS) in 2005/06 season

*Days after sowing = (DAS) * 1, 2 and 3 plus clodinafop-propargyl at rate 21 g (a.i) / fed.

Applying Giza 129 variety with mineral fertilizer 90 kg N/fed plus bio - fertilizer and tribenuron - methyl at the rate of 6 g (a.i)/fed followed by clodinafop propargyl at the rate of 21 g (a.i)/fed gave the highest reduction in the fresh weight of total annual weeds (i.e. 99.5%) as compared to Giza 129 variety with mineral fertilizer 90 kg N/fed without bio – fertilizer and untreated check at 100 (DAS) in the second season.

II-Effect of varieties, fertilizers and weed control treatments and their interactions on plant height, yield and yield components of barley crop.

A- Effect of varieties on plant height, yield and yield components of barley crop.

Data in Table 8 show the varieties did not differ significantly in plant height or yield and yield components of barley crop in both seasons except on grain yields in the second season. Grain yield increase reached around one ardab/fed for Giza 129 compared to Giza 126 (over two seasons). These results are in agreement with those obtained by Moshtohry and Daie (2007).

B- Effect of fertilizers on plant height, yield and yield components of barley crop.

Data in Table 8 show the fertilizers application did not affect plant height or yield and yield components of barley crop in both seasons except on grain yield in the second season. Applying mineral fertilizer 90 kg N/fed plus bio - fertilizer gave the highest increase in grain yield (ardab/fed) (i.e. 31.5%) compared to mineral fertilizer 50 kg N/fed plus bio-fertilizer in the second season.

C- Effect of weed control treatments on plant height, yield and its components of barley crop.

Data in Table 8 show the efficiency of weed control treatments reflected an increase in grain yield of barley with significant values. Untreated check weed treatment affected significantly plant height (cm) by 14.4 and 10.9% increases, respectively, as compared to florasulam 75 + flumetsulam 100 g/L at the rate of 5.25 g (a.i)/fed followed by clodinafop - propargyl at the rate of 21 g (a.i)/fed in the first and second seasons. In general applying tribenuron - methyl at the rate of 6 g (a.i)/fed followed by clodinafop-propargyl at the rate of 21 g (a.i)/fed affected significantly the increase in number of grains/spike, weight of spike/plant (g), weight of grains/spike (g), weight of 1000 - grain (g) and grain yield (ardab/fed.) by (73.2 & 83.7%), (80.1 & 78.6%), (74.9 & 83.6%), (30.9 & 30.98%) and (144.6 & 164.6%), respectively, as compared to untreated check in the first and second seasons. As for the number of spikes/plant, applying florasulam 75 + flumetsulam 100 g/L at the rate of 5.25 cc (a.i)/fed followed by clodinafop - propargyl at the rate of 21 g (a.i)/fed gave the highest increases (i.e. 37.1%) as compared to untreated check in the first season and tribenuron methyl at the rate of 6 g (a.i)/fed followed by clodinafop - propargyl at the rate of 21 g (a.i)/fed also affected significantly the increase of spike/plant by (13.2%) as compared to untreated check in the second season. Several studies revealed the superiority of applying tribenuron - methyl + clodinafop - propargyl herbicide in reducing the fresh weight of broad - leaved and grassy weeds as reported by Kholousy and Nassar (2001 & 2003) and Moshtohry and Daie (2007).

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D- Effect of the interactions among varieties, fertilizers and weed control treatments on plant height, yield and yield components of barley crop.

In general all interactions among barley varieties & fertilizers & varieties & weed control treatments, fertilizers & weed control treatments and varieties & fertilizers & weed control treatments did not have any significant effect on plant height, yield and yields components except on grain yields in the first and second seasons.

Data in Table 9 show the interaction between barley varieties and fertilizers application affected significantly grain yield (ardab/fed) in the first and second seasons. Applying Giza 129 variety with mineral fertilizer 90 kg N/fed plus bio - fertilizer.

increased the grain yield (ardab/fed) by 57.7 and 48.9% ,respectively, as compared to Giza 129 variety with mineral fertilizer at 50 kg N/fed plus bio-fertilizer in the in the first and second seasons.

Data in Table 9 show interaction between barley varieties and weed control treatments affected significantly grain yield (ardab/fed) in the first and second seasons. Applying Giza 129 variety with tribenuron - methyl at the rate of 6 g (a.i)/fed followed by clodinafop - propargyl at the rate of 21 g (a.i)/fed increased the grain yield (ardab/fed.) by 201.6 and 215.3%, respectively, as compared to Giza 126 variety with untreated check in the first and second seasons. These results are in agreement with those obtained by Moshtohry and Daie (2007).

Data in Table 9 show interaction between fertilizers application and weed control treatments affected significantly grain yield (ardab/fed) in the first and second seasons. The applying mineral fertilizer 90 kg N/fed plus bio – fertilizer with tribenuron - methyl at the rate of 6 g (a.i)/fed. followed by clodinafop - propargyl at the rate of 21 g (a.i)/fed increased the grain yield by 234.9 and 267.6%, respectively, as compared to 50 kg N/fed plus bio – fertilizer with untreated check in the first and second seasons. Data in Table 12 show interaction between barley varieties, fertilizers and weed control treatments affected significantly grain yield (ardab/fed) in both seasons. Applying Giza 129 variety with mineral fertilizer 90 kg N/fed plus bio - fertilizer and tribenuron - methyl at the rate of 6 g (a.i)/fed followed by clodinafop - propargyl at the rate of 21 g (a.i)/fed gave the highest grain yield (304.5 and 278.4%) ,respectively, as compared to Giza 126 variety with mineral fertilizer 90 kg N/fed without bio-fertilizer and untreated check in the in the first and second seasons.

		Poto	2004	4/ 05 sea	ason.	2005/ 06 seas		son.
Fertilizers	Weed control treatments	a.i.	Gi	za	Maan	Gi	za	Maan
		g/fed	126	129	Wear	126	129	Wear
90 ka	*1- Florasulam 75 + Flumetsulam 100 g/L	5.25	6.034	6.577	6.306	5.961	6.953	6.457
N/fed without bio – fertilizer	*2- Thifensul methyl + Metasuluron (68.2+6.8%)	18	5.500	6.559	6.030	5.283	7.262	6.273
	*3- Tribenuron-methyl	6	6.699	7.384	7.042	7.530	7.310	7.420
	4- Hand weeding twice		3.714	5.222	4.468	4.011	4.924	4.468
	5- Untreated check		2.355	3.252	2.804	2.468	2.779	2.624
		4.860	5.799	5.330	5.051	5.846	5.448	
90 ka	*1- Florasulam 75 + Flumetsulam 100 g/L	5.25	7.040	8.953	7.997	7.662	9.577	8.620
90 kg N/fed plus bio – fertilizer	*2- Thitensul methyl + Metasuluron (68.2+6.8%)	18	6.618	8.780	7.699	6.379	8.077	7.228
	*3- Tribenuron-methyl	6	8.101	9.527	8.814	9.335	9.340	9.338
	4- Hand weeding twice		5.017	6.885	5.951	4.707	5.465	5.086
	5- Untreated check		2.731	4.055	3.393	2.596	3.652	3.124
	Mean		5.901	7.640	6.771	6.136	7.222	6.679
70 ka	*1- Florasulam 75 + Flumetsulam 100 g/L	5.25	7.561	7.678	7.620	7.151	8.061	7.606
N/fed	*2- Thifensul methyl + Metasuluron (68.2+6.8%)	18	6.784	8.302	7.543	6.382	6.620	6.501
bio –	*3- Tribenuron-methyl	6	6.089	8.726	7.408	7.788	8.820	8.304
fertilizer	4- Hand weeding twice		4.507	5.791	5.149	4.434	6.327	5.381
	5- Untreated check		3.104	3.584	3.344	2.602	4.640	3.621
	Mean		5.609	6.816	6.213	5.671	6.894	6.283
50 ka	*1- Florasulam 75 + Flumetsulam 100 g/L	5.25	5.986	6.388	6.187	5.921	6.318	6.120
N/fed plus	*2- Thifensul methyl + Metasuluron (68.2+6.8%)	18	5.553	6.505	6.029	5.995	6.513	6.254
bio –	*3- Tribenuron-methyl	6	6.299	6.710	6.505	6.244	6.651	6.448
fertilizer	4- Hand weeding twice		3.856	4.420	4.138	3.562	4.316	3.939
	5- Untreated check		2.533	2.730	2.632	2.521	2.559	2.540
	Mean		4.845	5.351	5.098	4.849	5.271	5.060
	*1- Florasulam 75 + Flumetsulam 100 g/L	5.25	6.655	7.399	7.027	6.674	7.727	7.201
Over Fertilizers	*2- Thifensul methyl + Metasuluron (68.2+6.8%)	18	6.114	7.537	6.825	6.010	7.118	6.564
	*3- Tribenuron-methyl	6	6.797	8.087	7.442	7.724	8.030	7.877
	4- Hand weeding twice		4.274	5.580	4.927	4.179	5.258	4.718
5- Untreated check			2.681	3.405	3.043	2.547	3.408	2.977
	Mean			6.401	5.853	5.427	6.308	5.867
LSD at 5%	level				0.737			0.354
					0.366			0.401
					0.517			0.566
					0.732			0.801

Table (9): Effect of varieties, fertilizer and weed control treatments on grain yield in 2004/ 05 and 2005/06 seasons.

 * 1, 2 and 3 plus clodinafop-propargyl at rate 21 g (a.i.) / fed.

CONCLUSION

In conclusion, from present study the results showed that florasulam 75 + flumetsulam 100 g/L, thifensulfuron - methyl + metsuluron - methyl as new dicotyledonous herbicide can be used safely beside tribenuron-methyl for controlling annual broad-leaved weeds. Applying tribenuron-methyl followed by clodinafop-propargyl was more effective on controlling annual weeds and increasing grain yield of barley/fed. The response to nitrogen fertilization under soil of Ismailia was positive up to 90 kg N/fed to get the highest performances for all traits under study. The same results were obtained indicating that the great effect of bio - fertilization, in addition to nitrogen composition, increased nitrogen efficiency. So, applying mineral fertilizer at 90 kg N/fed plus bio-fertilizer is the best treatment for barley especially in newly reclaimed lands.

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إستجابة صنفين من الشعير للتسميد المعدني والحيوي ومعاملات مقاومة الحشائش.

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مصر أقيمت تجربتان حقليتان فى الأراضى الرملية بمحطة البحوث الزراعية بالإسماعيلية خلال ونحسة معاملات لمقاومة الحشائش على انتاجية صنفين من الشعير جبزه ٢٢٦ (صنف مغطى) و وخمسة معاملات لمقاومة الحشائش الكلية والمحصول ومكوناته فى الشعير. العريضة والضيقة الأوراق والحشائش الكلية والمحصول ومكوناته فى الشعير. أشارت النتائج أنه لم يكن للأصناف تأثير معنوى على الوزن الغض للحشائش الحولية العريضة الأوراق والحشائش الكلية عند ٢٠ و ٢٠٠ يوم من الزراعة فى كل من الموسمين وقد والموسم الثاني. كذلك لم تؤثر الأصناف على طول النبات ومكونات المحصول فى الموسمين وقد أثرت فقط على محصول الفدان حيث تفوق الصنف جيزة ١٢٦ بمتوسط ودالموسم الثاني. كذلك لم تؤثر الأصناف على طول النبات ومكونات المحصول فى الموسمين وقد أثرت فقط على محصول الفدان حيث تفوق الصنف جيزة ١٢٦ بمتوسط

حوّالي أردب

حوالي اردب. كان لمعاملات التسميد تأثير معنويا على الحشائش العريضة الأوراق عند ٧٠ و ١٠٠ يوم من الزراعة في الموسم الأول والموسم الثاني والحشائش الضيقة الأوراق عند ٧٠ يوم من الزراعة في الموسم الأول وعند ٧٠ و ١٠٠ يوم من الزراعة في كل من الموسم الأول والموسم الثاني وعلي الحشائش الكلية عند ١٠٠ يوم من الزراعة في الموسم الأول والموسم الثاني. حيث أعطت معاملة التسميد المعدني ٩٠ كجم ن/فدان بدون تسميد حيوى أعلى نقص معنوى على الحشائش العريضة الأوراق بـ ٣٨.٧ و ٢٠.٤% عند ٢٠ و ١٠٠ يوم من الزراعة على الترتيب والحشائش العريضة النجيلية بـ ٢٦.٢% والحشائش الكلية بـ ٣١.٨% عند ١٠٠ يوم من الزراعة على الزراعة بمعاملة النوبيلية مـ ٢٦.٤% والحشائش الكلية بـ ٣١.٨% عند ١٠٠ يوم من الزراعة على معاملة النوبيلية مـ ٢٦.٤% والحشائش الكلية ما ٢٠ النجيلية بـ ٢٦,٤ % و الحشائش الكلية بـ ٢,٣٦ % عند ٢٠٠ يوم من الزراعة بالمقارنة بمعاملة التسميد المعدنى ٥٠ كجم ن/فدان مع التسميد الحيوى , بمعاملة التسميد المعدنى ٥٠ كجم ن/فدان مع التسميد الحيوى , بمعاملة التسميد المعدنى ٥٠ كجم ن/فدان مع التسميد المعدنى ٥٠ كجم ن/فدان مع التسميد المعدنى ٩٠ كجم ن/فدان مع التسميد المعدى بمعاملة التسميد المعدنى ٩٠ كجم ن/فدان مع التسميد المعدنى ٩٠ كجم ن/فدان مع المعسميد الحيوى بمعاملة التسميد المعاملة أعلى نقص معنوى على الترتيب فى الموسم الأول. وفى الموسم الثانى ما أعطت نفس المعاملة أعلى نقص معنوى على الحشائش العريضة الأوراق بـ ٢٦,٤ % عند ٢٠ يوم من الزراعة بالمقارنة بمعاملة التسميد الحيوى أعلى نقص معنوى على التسميد الحيوى أعلى نقص معنوى على التسميد الحيوى. وما وأعطت معاملة التسميد المعدنى ٢٠ كجم ن/فدان مع التسميد الحيوى على التسميد الحريضة الأوراق بـ ٢٢,٤ % عند ٢٠ يوم المعاملة التسميد الحيوى أعلى نقص معنوى على المعاملة التسميد الحيوى و على المعاملة التسميد المعدني ٢٠ كجم ن/فدان مع التسميد الحيوى أعلى نقص معنوى على الحشائش العريضة الأوراق بـ ٢٣,٣ % عند ٢٠ و ٢٠٠ يوم من الزراعة فى الموسم على الموارنة بمعاملة التسميد المعدنى ٩٠ كجم ن/فدان مع التسميد الحيوى أعلى نقص معنوى الموى معنوى الموار الخبيب على طول النبات والمحصول ومكوناته فى الموسمين باستثناء محصول حبوب الفدان بـ ٢٢,٢ % و ٢٠ % على الحراق ومالة بمعاملة التسميد المعرون ومكرة من أولوان مع التسميد الحيوى عند ٢٠ و منا يوم من الزراعة فى الموسم الموار النبات والمحصول ومكوناته فى والسمين باستثناء محصول حبوب الفدان بـ ٢٢,٠ % و ٢٠ % هى النبات والمحصول ومكوناته فى الموسمين باستثناء معاملات التسميد الحيوى ٩٠ % مع من أول النبات والمول من الزراعة فى الموسم الأولي الموسمين باستثناء معاملات التسميد الحيوى ٩٠ % من وفدان مع التسميد المعوى من ورا النبات والمول ومال ومال ومالي الموسمي الول النبات والمول من وول النبات والمول ومالو الفى معاملة الموسمي الول المول ومالي والمول م و الثاني.

وبسعى. أثرت معاملات مقاومة الحشائش معنويا على الوزن الغض للحشائش الحولية العريضة والضيقة الأوراق والحشائش الكلية عند ٧٠ و١٠٠ يوم من الزراعة في كل من الموسم الأول والموسم الثاني حيث تفوقت بشكل عام معاملة ثيفنسيل ميثيل + ميتاسيليرون بمعدل ١٨ جم مادة فَعالَهُ للفُدان+ كلودينافوبَ – بروبيل بمعدل ٢١ جم مادة فعاله للفدان في مُقاومة الحشائش الكلية فعاله للفدان+ كلودينافوب – بروبيل بمعدل ٢١ جم مادة فعاله للعدان في مفاومه الحسّاس الكليه بنسبة ٩٣٦ و ٩٤.٢% مقارنة بمعاملة الكنترول بعد ٢٧ يوم من الزراعة في الموسم الأول والثاني على التوالى وتفوقت معاملة تريبونيل ميثيل بمعدل ٦ جم ماده فعاله للفدان + كلودينافوب – بروبيل بمعدل ٢١ جم مادة فعاله للفدان في مقاومة الحشائش الكلية بنسبة ٩٦.٢ و ٩٧.٦% مقارنة بمعاملة الكنترول بعد ١٠٠ يوم من الزراعة في الموسم الأول والثاني على التوالى. أيضا أدت نفس المعاملة إلى زيادة معنوية في طول النبات وفي المحصول ومكوناته وكانت الزيادة في محصول الحبوب بمقدار ٢٤.٢ و ١٦٤.٢ % على التوالي في الموسمين مقارنة بمعاملة الكنترول . أعطى التفاعل بين الأصناف والتسميد ومعاملات مقاومة الحشائش تأثير معنويا على الوزن الغض للحشائش الحولية العريضة والضيقة الأوراق والحشائش الكلية عند ٢٠ يوم من الزراعة ولم يكن لما تأثير على طول النبات ومحصول الشعير معمولاته وكانت الزيادة في محصول الموم ا

الزَّرْآعة ولِمْ يكن لها تِأْثير على طُول النبَّات ومحصُّول الشَّعير ومُكوناته فيما عدا صُفة محصُّول

الفدان في الموسم الأول والثاني. يستخلص من هذه الدراسة أن استخدام مبيدات للحشائش هو العامل المؤثر الوحيد في مقاومة الحشائش في زراعات الشعير طبقاً للحشائش السائدة وأنه لايوجد دور واضح للأصناف أو لمعاملات التسميد في مكافحة الحشائش تحت هذه الدر اسة.

Nassar, A.N.M.

Experiment treatments		Plant height (cm)		Spike length (cm)		No. of spikes / plant		No. of grains / spike		Weigh of spike /plant (g)		Weigh of grains /spike (g)		1000 grains weight (g)		Grain yield ardab/fed		Straw yield ton/fed	
		Season		Season		Season		Season		Season		Season		Season		Season		Season	
		1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
Verities	Giza 126	65.2	69.0	7.6	7.7	1.05	1.06	58.1	50.7	2.320	2.413	2.438	2.337	42.86	43.5	5.304	5.427	1.502	1.503
	Giza 129	66.5	70.3	7.6	7.5	1.09	1.05	49.1	42.9	1.966	2.363	2.178	2.329	41.27	41.1	6.401	6.308	1.490	1.469
	Mean	65.9	69.7	7.6	7.6	1.07	1.06	53.6	46.8	2.143	2.388	2.308	2.333	42.07	42.3	5.853	5.868	1.496	1.486
	LSD at 5% level	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.109	NS	NS
Fertilizers	90 kg N/fed without bio – fertilizer	66.2	66.4	7.8	7.6	1.63	1.10	56.5	46.1	2.062	2.347	2.206	2.280	42.18	41.78	5.330	5.448	1.536	1.478
	90 kg N/fed plus bio – fertilizer	67.2	70.7	7.9	7.6	1.09	1.01	51.7	45.4	2.393	2.460	2.432	2.450	43.45	43.74	6.771	6.679	1.669	1.521
	70 kg N/fed plus bio – fertilizer	67.4	70.3	7.5	7.7	1.03	7.07	52.4	50.5	2.142	2.380	2.332	2.357	42.02	42.99	6.213	6.283	1.465	1.646
	50 kg N/fed plus bio – fertilizer	66.7	69.2	7.4	7.6	1.14	1.02	53.9	46.2	1.974	2.346	2.263	2.241	40.61	40.66	5.098	5.060	1.414	1.401
	Mean	66.9	69.2	7.7	7.6	1.22	2.55	53.6	47.1	2.143	2.383	2.308	2.332	42.07	42.3	5.853	5.868	1.521	1.5
	LSD at 5% level	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	0.208	NS	NS
	*1- Florasulam 75 + Flumetsulam 100 g/L	66.2	67.4	7.4	7.6	1.10	1.03	62.74	54.32	2.413	2.711	2.685	2.705	43.68	44.80	7.027	7.201	1.508	1.496
Weed control treatments	*2- Thifensul methyl + Metasuluron (68.2+6.8%)	63.0	66.7	7.5	7.6	1.11	1.13	54.48	47.62	2.278	2.584	2.516	2.539	43.11	42.93	6.825	6.564	4.523	1.552
	*3- Tribenuron-methyl	67.5	69.8	8.0	7.9	1.22	1.15	65.38	59.12	2.617	2.785	2.703	2.757	47.05	46.75	7.442	7.877	1.576	1.499
	4- Hand weeding twice	65.5	70.2	7.8	7.6	1.03	1.05	47.70	40.80	1.952	2.276	2.092	2.162	40.55	41.30	4.927	4.718	1.399	1.419
	5- Untreated check	72.1	74.0	7.4	7.5	0.89	0.91	37.74	32.19	1.453	1.559	1.545	1.502	35.94	35.69	3.043	2.977	1.474	1.472
	Mean	66.9	69.6	7.6	7.6	1.07	1.05	53.61	46.81	67.930	70.674	61.228	54.450	42.07	42.29	5.853	5.867	2.096	1.488
	LSD at 5% level	2.7	2.6	NS	NS	0.09	1.09	3.18	3.27	0.19	0.183	0.193	0.158	1.24	1.1	0.254	0.217	NS	NS

 Table 8: Effect of varieties, fertilizers and weed control treatments on yield and yield components in 2004/05 and 2005/06 seasons.