

# Efficiency of Some Herbicide Treatments on Maize Weeds, Yield and Yield Components

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## ABSTRACT

A field experiment was carried out to evaluate the efficiency of some herbicide treatments on maize (*Zea mays*, single hybrid 10) weeds, yield and yield components for two successive seasons (2008-2009) at Elhager, Elbeheira governorate, the treatments were acetochlor with different rate of applications (550, 650, 750 and 1000ml/feddan), nicosulfuron (500ml/feddan), diuron (450 gm/feddan), foramsulfuron (750 ml/feddan), metribuzin (300 gm/feddan), handweeding and unweeded check.

The results indicated that the dominant weed in both seasons was *Setaria verticillata* and the best herbicide treatment that achieved maximum reduction in total weeds was acetochlor (1 Litre/fed) as it gave 93.8 and 92.5% reduction after 45 and 90 days, respectively during 2008; and 95.3 and 92.9% reduction after 45 and 90 days respectively, during 2009, followed by nicosulfuron (500ml/feddan) which gave reduction percentage 89.9 and 86.1% in 2008 and 90.2 and 87.3% after 45 and 90 days respectively in 2009.

Also, it was noticed that acetochlor (750ml/fed) gave good control for *S. verticillata* and *Amaranthus cruentus* while Foramsulfuron (750 ml/feddan) was excellent in controlling narrow leaf weeds.

Highest crop yield was observed in the case of acetochlor (1 Litre/fed) which gave 3.32 ton/fed during 2008 and 3.23 ton/fed during 2009 followed by nicosulfuron.

The least weed reduction as well as crop yield was observed in the case of acetochlor 550 and 650 ml/fed which was almost similar to unweeded check.

**Key words:** maize, herbicides, chemical weed control, acetochlor, nicosulfuron, diuron, foramsulfuron, metribuzin.

## INTRODUCTION

Maize is one of the most important food crops in Egypt. Maintaining and increasing the production of maize is essential to meet the nutritional requirements, and to provide income for farmers who sell their crop. Weeds are one of the major constraints to production, reducing yields by up to one third (or more in some areas).

It is well known that the weeds interfere with crops causing serious impacts through either competition (for light, water, nutrients and space) and/or allelopathy.

Each area for maize growing is characterized by the presence of certain weed species, the specific weed encroachment being influenced by climatic and soil conditions, and technologies used both in fore crops and maize crop; each area needs specific weed control strategies (Berca, 2004).

Weed control is important in maize production and carried out by mechanical and/or chemical methods. Optimization of herbicide use can be achieved at three steps: non-chemical preventive methods to reduce the initial density of weeds, assessment of the need for weed control after crop establishment and finally the choice of herbicide rates to be applied (Dogan et al, 2005.)

Cultivation plus herbicide application can be beneficial in row crop production (Rosales-Robles et

al, 1999, Steckel and Defelice, 1995, Donald and Johnso, 2003, Donald et al 2001), thus integrating all control practice can be more effective (Swanton and Morphy, 1996). Therefore the present study was carried out to evaluate the efficiency of some herbicide treatments on weeds, yield and yield components of maize.

## MATERIALS AND METHODS

A field experiment was carried out in Elhagger-Beheira governorate to control either broad or narrow leave weeds in maize (*Zea mays*, single hybrid 10) during two successive seasons (2008-2009). The experimental design was randomized complete block design with three replicates (the area of each was 21m<sup>2</sup>). The herbicidal treatments as well as application time and rate are presented in Table (1). The herbicidal treatments in both seasons were applied as a pre-emergence or post-emergence according to the recommended time of application using a CP3 knapsack sprayer with red fan type nozzle. Handweeding as well as unweeded checks were also included in both seasons.

All cultural practices like fertilization and irrigation were applied as usual in maize plantation.

Evaluation of herbicidal efficacy was carried out at 45 and 90 days after application by collecting all weeds grown in 1m<sup>2</sup> randomly, weeds were sorted and weighted. Percentage of weed reduction of each

weed species, broad leaf weeds, grassy weeds and total of all weeds were calculated. On the other hand, the effect of tested herbicides on yield and yield components were also calculated by measuring cob weight (gm), length (cm), diameter (cm), number of rows in each cob, 100 seed weight (gm) and weight of seed/cob as well as total feddan yield (ton).

Statistical analysis of data was carried out by assistat software verion beta (Silva and Azevedo, 2009).

## RESULTS AND DISCUSSION

The herbicidal efficiency of tested herbicides were presented as percentages of reduction as well as weed weight. The results in Tables (2, 3, 4 and 5) indicated that the dominant weed in both seasons was *Setaria verticillata* (L.) Beauv with a percentage of (38.4, 33.8%) after 45, 90 days respectively in the first season and (38.9 and 36.3%) after 45 and 90 days respectively in the second season followed by *Portulaca oleracea* with a percentage of (31.2, 30.4%) in the first season and (29.7, 30.6%) in the second season then *Amaranthus cruentus* L. (17.2, 20.2%) in the first season and (19,19.1%) in the second season and *Dactyloctenium aegyptium* (L.) P. Beauv with a percentage (13.2,15.6%) and 12.4, 14%) in the first and second seasons, respectively.

### 1, Effect of herbicides on weeds:

#### a. Effect of tested herbicides on broad-leaf weeds:

The experiment showed that the most effective herbicides in the first season were acetochlor, nicosulfuron, diuron and metribuzin with a

percentage of reduction (93.7, 93.2%), (90.6, 87%), (94.3, 92%) and (95.5, 92) at 45 and 90 days, respectively against total broad-leaf weeds. These treatments were followed by handweeding in reduction efficiency with a percentage (76.7 and 70.5%) then Acetochlor 750 ml/fed (64.5 and 67.7) and foramsulfuron (54.4 and 67.7% reduction), respectively, which were not significant either after 45 or 90 days.

Acetochlor (750ml/feddan) showed good control for *Amaranthus cruentus* L. in the first season with a percentage of reduction 93.1 and 91.4% after 45 and 90 days, respectively, but it failed to give the similar results on *Portulaca oleracea* (Table 2)

In the second season, the same results were obtained as acetochlor, nicosulfuron, diuron and metribuzin which gave the highest broad-leaf weeds control with a reduction percentages 94.3, 92.7%; 90.8, 87%; 89, 85.9 and (94.7, 93%) after 45 and 90 days respectively with no significant differences between them. (Table 3)

The least significant reduction percentages in both seasons were obtained in the case of minimum application rates of acetochlor (550ml and 650 ml/fed) compared to the unweeded check. (Tables: 2, 3)

#### b. Effect of tested herbicides on narrow-leaf weeds:

The data in Tables (4, 5) indicated that acetochlor (750ml), (1000ml/fed.), nicosulfuron and foramsulfuron were best treatments for controlling narrow leaf weeds in the first season after 45 days with a percentages (90, 93.8, 89.2 and 98.4%)

**Table 1: common, Trade, chemical names, formulation, rate and time of herbicidal treatments.**

Treatment No.	Common name	Trade name	Chemical name (Chemical abstracts)	Formulation	Rate/fed	Application time
1	Acetochlor	Harness	2-chloro-N-(ethoxymethyl)-N-(2-ethyl-6-methylphenyl) acetamide	84% EC	550 ml	Pre-emergence
2					650 ml	
3					750 ml	
4					1000 ml	
5	Nicosulfuron	Primero	2-[[[(4,6-dimethoxy-2-pyrimidinyl)amino]carbonyl]amino]sulfonyl]-N,N-dimethyl-3-pyridinecarboxamide	75% DF	500 ml	Pre-emergence
6	Diuron	Diuropest	N-(3,4-dichlorophenyl)-N,N-dimethylurea	80% WDG	450 gm	Pre-emergence
7	Foramsulfuron	Equip	2-[[[(4,6-dimethoxy-2-pyrimidinyl)amino] carbonyl]amino]sulfonyl]-4-(formylamino)-N,N-dimethylbenzamide	22.5 % OD	750 ml	Post-emergence
8	Metribuzin	Sencor	4-amino-6-(1,1-dimethylethyl)-3-(methylthio)-1,2,4-triazin-5(4H)-one	70% WG	300 gm	Pre-emergence
9	Handweeding					
10	Unweeded check					

**Table 2: Effect of herbicidal treatments on maize broad leaf weeds (fresh weight g/m<sup>2</sup>) during 2008.**

Treatment	<i>Amaranthus cruentus</i> L.				<i>Portulaca oleracea</i>				Total broad leaves			
	45 days		90 days		45 days		90 days		45 days		90 days	
	weight g/m <sup>2</sup>	% R	weight g/m <sup>2</sup>	% R	weight g/m <sup>2</sup>	% R	weight g/m <sup>2</sup>	% R	weight g/m <sup>2</sup>	% R	weight g/m <sup>2</sup>	% R
Acetochlor 550 ml/fed	176.7	48.0	423.3	27.4	456.7	25.9	616.7	29.7	633.3	33.8	1040.0	28.8
Acetochlor 650 ml/fed	136.7	59.8	236.7	59.4	436.7	29.2	583.3	33.5	573.3	40.1	820.0	43.8
Acetochlor 750 ml/fed	23.3	93.1	50.0	91.4	316.7	48.6	423.3	51.7	340.0	64.5	473.3	67.6
Acetochlor 1000 ml/fed	6.7	98.0	26.7	95.4	53.3	91.4	73.3	91.6	60.0	93.7	100.0	93.2
Nicosulfuron	30.0	91.2	46.7	92.0	60.0	90.3	143.3	83.7	90.0	90.6	190.0	87.0
Diuron	31.7	90.7	73.3	87.4	23.3	96.2	43.3	95.1	55.0	94.3	116.7	92.0
Foramsulfuron	83.3	75.5	116.7	80.0	353.3	42.7	356.7	59.3	436.7	54.4	473.3	67.6
Metribuzin 300 gm	26.7	92.2	80.0	86.3	16.7	97.3	36.7	95.8	43.3	95.5	116.7	92.0
Hand weeding	116.7	65.7	163.3	72.0	106.7	82.7	266.7	69.6	223.3	76.7	430.0	70.5
Unweeded check	340.0	0.0	583.3	0.0	616.7	0.0	876.7	0.0	956.7	0.0	1460.0	0.0
LSD <sub>0.05</sub>									100.7		104.5	
% infestation	17.2		20.2		31.2		30.4		48.4		50.6	

% R = percentage of weed reduction

**Table 3: Effect of herbicidal treatments on maize broad leaf weeds (fresh weight g/m<sup>2</sup>) during 2009.**

Treatment	<i>Amaranthus cruentus</i> L.				<i>Portulaca oleracea</i>				Total broad leaves			
	45 days		90 days		45 days		90 days		45 days		90 days	
	weight g/m <sup>2</sup>	% R	weight g/m <sup>2</sup>	% R	weight g/m <sup>2</sup>	% R	weight g/m <sup>2</sup>	% R	weight g/m <sup>2</sup>	% R	weight g/m <sup>2</sup>	% R
Acetochlor 550 ml/fed	193.3	47.3	316.7	33.1	406.7	29.1	633.3	16.3	600.0	36.2	950.0	22.8
Acetochlor 650 ml/fed	183.3	50.0	333.3	29.6	373.3	34.9	690.0	8.8	556.7	40.8	1023.3	16.8
Acetochlor 750 ml/fed	33.3	90.9	66.7	85.9	356.7	37.8	566.7	25.1	390.0	58.5	633.3	48.5
Acetochlor 1000 ml/fed	16.7	95.5	23.3	95.1	36.7	93.6	66.7	91.2	53.3	94.3	90.0	92.7
Nicosulfuron	30.0	91.8	60.0	87.3	56.7	90.1	100.0	86.8	86.7	90.8	160.0	87.0
Diuron	40.0	89.1	66.7	85.9	63.3	89.0	106.7	85.9	103.3	89.0	173.3	85.9
Foramsulfuron	110.0	70.0	136.7	71.1	183.3	68.0	233.3	69.2	293.3	68.8	370.0	69.9
Metribuzin 300 gm	23.3	93.6	36.7	92.3	26.7	95.3	50.0	93.4	50.0	94.7	86.7	93.0
Hand weeding	176.7	51.8	296.7	37.3	56.7	90.1	260.0	65.6	233.3	75.2	556.7	54.7
Unweeded check	366.7	0.0	473.3	0.0	573.3	0.0	756.7	0.0	940.0	0.0	1230.0	0.0
LSD <sub>0.05</sub>									95.4		115.3	
% infestation	19.0		19.1		29.7		30.6		48.7		49.7	

% R = percentage of weed reduction

Table 4: Effect of herbicidal treatments on maize narrow leaf weeds (fresh weight g/m<sup>2</sup>) during 2008.

Treatment	<i>verticillata (L.) Beauv Setaria</i>				<i>Dactyloctenium aegyptium (L.) P. Beauv</i>				Total narrow leaves			
	45 days		90 days		45 days		90 days		45 days		90 days	
	weight g/m <sup>2</sup>	% R	weight g/m <sup>2</sup>	% R	weight g/m <sup>2</sup>	% R	weight g/m <sup>2</sup>	% R	weight g/m <sup>2</sup>	% R	weight g/m <sup>2</sup>	% R
Acetochlor 550 ml/fed	306.7	59.6	460.0	52.7	116.7	55.1	373.3	17.0	423.3	58.4	833.3	41.5
Acetochlor 650 ml/fed	246.7	67.5	380.0	61.0	93.3	64.1	366.7	18.5	340.0	66.6	746.7	47.5
Acetochlor 750 ml/fed	48.3	93.6	106.7	89.000	53.3	79.5	130.0	71.1	101.7	90.0	236.7	83.4
Acetochlor 1000 ml/fed	46.7	93.8	80.0	91.8	16.7	93.6	36.7	91.9	63.3	93.8	116.7	91.8
Nicosulfuron	73.3	90.3	113.3	88.4	36.7	85.9	96.7	78.5	110.0	89.2	210.0	85.2
Diuron	163.3	78.5	330.0	66.1	160.0	38.5	100.0	77.8	323.3	68.2	430.0	69.8
Foramsulfuron	13.3	98.2	36.7	96.2	3.3	98.7	13.3	97.0	16.7	98.4	50.0	96.5
Metribuzin 300 gm	210.0	72.3	233.3	76.0	66.7	74.4	123.3	72.6	276.7	72.8	356.7	74.9
Hand weeding	186.7	75.4	163.3	83.2	76.7	70.5	250.0	44.4	263.3	74.1	413.3	71.0
Unweeded check	758.3	0.0	973.3	0.0	260.0	0.0	450.0	0.0	1018.3	0.0	1423.3	0.0
LSD 0.05									142.8		100.7	
% infestation	38.4		33.8		13.2		15.6		51.6		49.4	

% R = percentage of weed reduction

Table 5: Effect of herbicidal treatments on maize narrow leaf weeds (fresh weight g/m<sup>2</sup>) during 2009.

Treatment	<i>Setaria verticillata (L.) Beauv</i>				<i>Dactyloctenium aegyptium (L.) P. Beauv</i>				Total narrow leaves			
	45 days		90 days		45 days		90 days		45 days		90 days	
	weight g/m <sup>2</sup>	% R	weight g/m <sup>2</sup>	% R	weight g/m <sup>2</sup>	% R	weight g/m <sup>2</sup>	% R	weight g/m <sup>2</sup>	% R	weight g/m <sup>2</sup>	% R
Acetochlor 550 ml/fed	310.0	58.7	513.3	43.0	166.7	30.6	233.3	32.7	476.7	51.9	746.7	40.1
Acetochlor 650 ml/fed	230.0	69.3	516.7	42.6	136.7	43.1	280.0	19.2	366.7	63.0	796.7	36.1
Acetochlor 750 ml/fed	40.0	94.7	70.0	92.2	73.3	69.4	273.3	21.2	113.3	88.6	343.3	72.5
Acetochlor 1000 ml/fed	18.3	97.6	56.7	93.7	20.0	91.7	30.0	91.3	38.3	96.1	86.7	93.0
Nicosulfuron	56.7	92.4	90.0	90.0	46.7	80.6	63.3	81.7	103.3	89.6	153.3	87.7
Diuron	160.0	78.7	270.0	70.0	160.0	33.3	306.7	11.5	320.0	67.7	576.7	53.7
Foramsulfuron	8.3	98.9	33.3	96.3	6.7	97.2	13.3	96.2	15.0	98.5	46.7	96.3
Metribuzin 300 gm	156.7	79.1	126.7	85.9	53.3	77.8	216.7	37.5	210.0	78.8	343.3	72.5
Hand weeding	183.3	75.6	360.0	60.0	63.3	73.6	156.7	54.8	246.7	75.1	516.7	58.6
Unweeded check	750.0	0.0	900.0	0.0	240.0	0.0	346.7	0.0	990.0	0.0	1246.7	0.0
LSD 0.05									72.4		173.8	
% Infestation	38.9		36.3		12.4		14.0		51.3		50.3	

% R = percentage of weed reduction

reduction, respectively with no significant difference among them, whereas the rest of all treatments were not significantly different.

After 90 days foramsulfuron and acetochlor (1000ml/fed.) gave the highest percentage of reduction (96.5 and 91.8%) followed by nicosulfuron (85.2%) which did not differ significantly from acetochlor (1000ml).

Acetochlor (750ml/fed.) gave percentage of reduction 83.4% with no significant difference from nicosulfuron however it gave 89% reduction in *Setaria verticillata* (L.) Beauv which is the dominant weed in both seasons.

After 45 days, in the second season there were no significant difference between foramsulfuron and acetochlor (1000ml/fed) as they gave 98.5, 96.1% reduction, respectively followed by nicosulfuron and acetochlor (750ml/fed).

The least percentage of reduction in both seasons for narrow-leaf weeds was in the case of acetochlor with minimum concentrations (550 and 650ml/fed.) compared to the unweeded check. (Table, 5)

Generally, in both seasons foramsulfuron and acetochlor (1000ml/fed) were the best in controlling narrow-leaf weeds, also, acetochlor (750ml/fed) gave sufficient results as it succeeded to control *Setaria verticillata* (L.) Beauv (dominant weed).

These results agreed with (Mekki and leroux, 1994) as well as (Kudsk and Streibig, 2003) who

mentioned that when very sensitive weed species dominate on the field so weed control can be achieved by the reduced rates of herbicides which serves to save the costs and reduce the possible risks of chemical weed control, also this result agreed with Dogan *et al*, 2005. Who showed that a weed control strategy with reduced herbicide rates can be realized by considering the sensitivities of different common weed species of a particular field.

#### c. Effect of tested herbicides on total weeds:

The data in Table (6) showed that after 45 days in both seasons the highest control in total weeds was obtained in the case of acetochlor (1litre ml/fed) and nicosulfuron as they gave percentage of reduction 93.8, 89.9%, respectively, in the first season and 95.3, 90.2% in the second season. On the other hand, after 90 days acetochlor (1litre/fed) was still the herbicide with the best reduction percentage in the first season and differ significantly than the rest of treatments (92.5% reduction) followed by nicosulfuron, foramsulfuron and metribuzin while the least reduction was found in the case of acetochlor 550ml and 650ml/fed).

But in the second season acetochlor (1litre/fed) did not differ significantly than nicosulfuron in percentage of reduction which were 92.9 and 87.3%, respectively.

Generally in both seasons acetochlor at the rate of (1litre/fed) was proved to be the best herbicide in controlling total weeds followed by nicosulfuron.

**Table 6: Effect of herbicidal treatments on maize total weeds (fresh weight g/m<sup>2</sup>) during both seasons (2008 and 2009).**

Treatment	first season (2008)				second season (2009)			
	45 days		90 days		45 days		90 days	
	weight g/m <sup>2</sup>	% R	weight g/m <sup>2</sup>	% R	weight g/m <sup>2</sup>	% R	weight g/m <sup>2</sup>	% R
Acetochlor 550 ml/fed	1056.7	46.5	1873.3	35.0	1076.7	44.2	1696.7	31.5
Acetochlor 650 ml/fed	913.3	53.8	1566.7	45.7	923.3	52.2	1820.0	26.5
Acetochlor 750 ml/fed	441.7	77.6	710.0	75.4	503.3	73.9	976.7	60.6
Acetochlor 1000 ml/fed	123.3	93.8	216.7	92.5	91.7	95.3	176.7	92.9
Nicosulfuron	200.0	89.9	400.0	86.1	190.0	90.2	313.3	87.3
Diuron	378.3	80.8	546.7	81.0	423.3	78.1	750.0	69.7
Foramsulfuron	453.3	77.0	523.3	81.8	308.3	84.0	416.7	83.2
Metribuzin 300 gm	320.0	83.8	473.3	83.6	260.0	86.5	430.0	82.6
Hand weeding	486.7	75.4	843.3	70.8	480.0	75.1	1073.3	56.7
Unweeded check	1975.0	0.0	2883.3	0.0	1930.0	0.0	2476.7	0.0
LSD 0,05	185.4		133.5		120		213.7	

% R = percentage of weed reduction

## 2. Effect of tested herbicides on yield components:

The data in Tables (7, 8) showed that highest significant cob weight were obtained in the treatment of acetochlor (1000ml/Fed), nicosulfuron, foramsulfuron, and metribuzin in both seasons. The length, diameter, number of rows in each cob was not obviously different in all treatments. Concerning with 100 seed weight and weight of seeds/cob, acetochlor (1000ml/fed), nicosulfuron and foramsulfuron were higher than the rest of treatments however some other treatments were not significantly different from nicosulfuron or foramsulfuron like metribuzin and acetochlor (750ml/fed).

In general, best treatments were acetochlor (1litre/Fed), nicosulfuron, foramsulfuron and metribuzin in all parameters while, the least were in the unweeded check as well as acetochlor 550 and 650ml/fed.

## 3. Effect of tested herbicides on yield

The data in Tables (7, 8) indicated that the best treatment which gave highest yield in the first season was acetochlor 1litre/fed (3.32 ton/fed) followed by nicosulfuron and metribuzin 3.12 and 2.95 ton/fed with no significant difference between them.

In the second season the highest yield was obtained in the case of acetochlor (1litre/fed) and nicosulfuron which did not differ significantly, followed by diuron and foramsulfuron. acetochlor (750ml/fed) and foramsulfuron showed no significant difference in both seasons, this result may refer to the percentage of reduction which was sufficient with acetochlor (750ml/fed) on *Amaranthus cruentus* L. and *Setaria verticillata* (L.) Beauv while foramsulfuron was efficient on *Setaria verticillata* (L.) Beauv and *Dactyloctenium aegyptium* (L.) P. Beauv.

**Table 7: Effect of herbicidal treatments on maize yield and yield components during 2008.**

Treatment	Cob weight (gm)	Length (cm)	Diameter (cm)	No. of rows	100 seed weight (gm)	weight of seeds/cob(gm)	yield ton/Feddan
Acetochlor 550 ml/fed	172.7	18.3	15.8	11.5	36.7	151.3	2.04
Acetochlor 650 ml/fed	167.6	16.8	14.8	11.0	35.4	157.3	2.02
Acetochlor 750 ml/fed	190.9	17	15.5	11.0	38.2	182.0	2.72
Acetochlor 1000 ml/fed	235.5	18.2	14.8	11.0	43.9	216.8	3.32
Nicosulfuron	233.3	18.6	15.4	11.1	41.5	211.0	3.12
Diuron	184	17.2	16.3	11.2	36.9	186.4	2.89
Foramsulfuron	228.5	17.8	14.8	10.8	41.5	207.1	2.74
Metribuzin 300 gm	221.7	18.1	16.4	10.8	39.1	196.4	2.95
Hand weeding	198.8	16.8	14.5	11.0	37.6	177.2	2.62
Unweeded check	176.6	17.4	13.8	10.8	34.7	149.6	1.98
LSD 0.05	21.7	1.3	1.0	0.8	3.7	18.7	0.2

**Table 8: Effect of herbicidal treatments on maize yield and yield components during 2009.**

Treatment	Cob weight (gm)	Length (cm)	Diameter (cm)	No. of rows	100 seed weight (gm)	weight of seeds/cob(gm)	yield ton/feddan
Acetochlor 550 ml/fed	164.6	18.3	14.6	11.4	34.0	142.7	1.83
Acetochlor 650 ml/fed	159.5	16.3	13.8	11.6	32.8	148.4	1.95
Acetochlor 750 ml/fed	181.8	16.5	14.9	12.0	36.4	171.7	2.55
Acetochlor 1000 ml/fed	224.3	17.7	14.2	11.8	41.8	201.4	3.23
Nicosulfuron	222.2	18.0	15.0	12.0	39.5	196.3	3.05
Diuron	175.2	16.7	15.0	11.6	35.2	175.9	2.94
Foramsulfuron	217.6	17.3	14.2	11.5	39.5	195.4	2.78
Metribuzin 300 gm	211.1	17.6	14.2	11.7	37.3	185.3	2.88
Hand weeding	189.5	16.6	13.6	11.6	36.0	167.2	2.42
Unweeded check	168.2	16.9	13.2	11.5	33.1	140.5	1.78
LSD 0.05	21.0	1.3	1.2	1.0	3.5	18.1	0.26

The least yield in both seasons were found in the case of unweeded check, acetochlor 550ml and 650ml/Fed. which were not significantly different.

These results agreed with *Bunting et al*, 2005. Who mentioned that Sequential herbicide programs of atrazine, S-metolachlor, or isoxaflutole applied preemergence (PRE) followed by a POST application of foramsulfuron provided greater than 85% control of giant foxtail, fall panicum, common cocklebur, velvetleaf, common waterhemp, and redroot pigweed.

Also the results agreed with *Lum, A.F. et al*, 2005, who stated that 150 to 200 g/ha of nicosulfuron applied 1 or 2 weeks after planting is effective for cogon grass control without adverse effect on corn yield.

*Norsatti et al*. 2007, as well as *Auskalniene and Auskahis*, 2006, indicated that all plots that received nicosulfuron with different concentrations had significantly higher maize grain yield than the unweeded control.

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## الملخص العربي

## فعالية بعض معاملات مبيدات الحشائش على حشائش الذرة الشامية والمحصول ومكوناته

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تم اجراء تجربة حقلية لتقييم كفاءة بعض مبيدات الحشائش على محصول الذرة الشامية هجين فردى ١٠ فى منطقة الحاجر - محافظة البحيرة خلال موسمى ٢٠٠٨-٢٠٠٩ وكانت المعاملات كالاتى : سيتوكلور بمعدلات تطبيق مختلفة (٥٥٠ ، ٦٥٠ ، ٧٥٠ و ١٠٠٠ مل/فدان) ، نيكوسلفيورون (٥٠٠ مل/فدان) ، ديورون (٤٥٠ جم/فدان) ، فورام سلفيورون (٧٥٠ مل/فدان) ، متربيوزون (٣٠٠ جم/فدان) ، نقاوة يدوية ، كنترول .

اظهرت النتائج ان الحشيشة السائدة فى الموسمين كانت الصبغية وكانت اكثر المعاملات كفاءة والتي اعطت أعلى نسبة خفض فى الحشائش هى معاملة اسيتوكلور (١ لتر / فدان ) حيث اعطت ٩٣,٨ % ، ٩٢,٥% خفض فى الموسم الاول بعد ٤٥ ، ٩٠ يوم على التوالي و ٩٥,٣ % ، ٩٢,٩% خفض بعد ٤٥ ، ٩٠ يوم فى الموسم الثانى على التوالي وجاءت من بعده مبيد نيكوسلفيورون (٥٠٠ مل/فدان) و التى أعطت ٨٩,٩ ، ٨٦,١% خفض فى ٢٠٠٨ و ٩٠,٢ ، ٨٧,٣ % فى ٢٠٠٩ .

لُتَبَت للنتائج أن معاملة اسيتوكلور (٧٥٠ مل / فدان ) نتاج جيدة على عرف الديك والصبغية كما اعطت معاملة فورام سلفيورون نتائج ممتازة فى مكافحة الحشائش رقيقة الاوراق .

كما اظهرت النتائج ان اعلى انتاجية للفدان كانت فى حالة استخدام معاملة اسيتوكلور (١ لتر/فدان) حيث اعطت (٢,٣٢ طن/فدان) فى الموسم الاول و (٣,٢٣ طن / فدان) فى الموسم الثانى وجاءت معاملة نيكوسلفيورون فى المرتبة الثانية .

أوضحت النتائج ان اقل نسبة مكافحة للحشائش وكذلك اقل انتاجية للفدان كانت فى حالة معاملة الاسيتوكلور ٥٥٠ ، ٦٥٠ مل / فدان حيث كانت نتائجها مقارنة للمقارنة .