Journal of University of Duhok., Vol. 20, No.1 (Agri. and Vet. Sciences), Pp 73-86, 2017
DOI: https://doi.org/10.26682/avuod.2017.20.1.10

EFFECT OF HERBICIDE AND NITROGEN FERTILIZER LEVELSON WEED AND WHEAT YIELD IN DIFFERENT SOWING DATES.

MOHAMMED **A**LI **H**USSAIN, **A**BBAS **A**LO **K**HETHER [*] and **M**OHAMMED **O**THMAN **M**OHAMMED[**]
[*]Dept. of field crops, College of Agriculture University of Duhok, Kurdistan Region-Iraq.
[**]Dept. of field crops, College of Agriculture University of Duhok, Kurdistan Region-Iraq.
College of Sciences. University of Zakho, Kurdistan Region-Iraq.

(Received: October 3, 2017; Accepted for publication: December 28, 2017)

ABSTRACT

A field experiment was carried out at the field of Agricultural College of Duhok University in Kurdistan Region, during the growing season 2016-2017 in two sowing dates (28/11 and 28/12/2016), to study the effect of four levels of herbicide((Topic: 0, 1200, 1600, 2000 ml. ha^{-1} and 2-4, D,: 0, 2000, 2400, 2800 ml ha^{-1}) and four levels of nitrogen fertilizer added as urea 46% nitrogen (0, 60, 120, 180 kg ha^{-1}) on growth of weeds and yield and yield components of bread wheat. The experiment were laid out as factorial experiment using in Randomized Complete Block Design with three replications. The result revealed that the herbicide levels were more effective to kill the broad and narrow leaved weeds while, the nitrogen levels were significantly effect on yield and yield components of wheat. The interaction between H_3N_3 (2000 ml/ha^{-1} Topic + 2800 ml/ha^{-1} 2-4, D with 180 kg ha^{-1}) and first planting date gave the maximum yield and yield components (51.1seeds spike $^{-1}$, 1.7 g Grain weight spike^{-1}, 41.4g weight f 1000 grain and 397.1 g Grain yieldg m^{2}), respectively.

KEYWORD: Herbicide, weeds, nitrogen, wheat, yield,.

INTRODUCTION

Wheat *(Tirtiticum aestivium L.*) is the most important crop among food cereals. There are numbers of factors responsible for reducing yield of wheat crop among which one major cause is weed infestation. Weeds are the most serious pest reducing control , the selection of herbicide, time of application and using the suitable dose is an important consideration for lucrative treatment, while, Cheema and Akhtar,(2005) reported that the herbicides of grassy and broad leaf herbicides was the best than their separate application for weed control, the efficacy of various post emergence herbicides increased wheat grain spike , 1000 - grain weight , straw yield and grain yield up to 92% , 80%, 107% and 59%. respectively. Bib, et al., 2008 respected that weeds compete with crop plants for essential growth factors like light, moisture, nutrients and space, weed can also increase harvesting cost and reduce quality of product.

Nitrogen as inessential nutrient, plays a vital role in increasing the yield of crops . Kelly, *et al* (2015). Among major cereals, Pathak *et al.*, (2003) studied wheat requires, 1 kg of nitrogen to produce 44 kg of wheat, and also, Dobermaun and Cassman, (2004) indicated that more than 50% of the nitrogen applied is not assimilated by plant.

Several researchers (Amon, 1972, Bungard *et al*., 1999 and Farzad and saeed, 2015. have shown that nitrogen comprise 7% of total dry matter of plant composition, Plays a vital role in most metabolic reaction which occurs in living plant cells Camra *et al*., (2003) and Kim *et al*. (2006), reported that the relation competitive abilities of wheat and weeds, weeds were influenced by nitrogen supply and the crop and weeds have the same basic needs so that competition between them will effect the amount of soil nitrogen. The study was conducted to determine the effect of nitrogen and herbicide levels on weeds, yield ad yield component wheat under rainfall condition.

MATERIALS AND METHOD

SField study was carried out during winter season 2016 – 2017 under rainfall conditions, at the field of Agriculture Collage – Duhok

DOI: https://doi.org/10.26682/avuod.2017.20.1.10

University – Semmel District – Duhok Governorate – Kurdistan region /Iraq. Four levels of herbicides; (Topic 0, 1200, 1600, 2000 ml. ha^{-1} and 2-4, D, 0, 2000, 2400, 2800 ml ha^{-1}) and nitrogen fertilizer as urea 46% nitrogen were used (0, 60, 120, 180 kg N ha^{-1}) and maxipak cultivar of bread wheat were used. Nitrogen fertilizer added in two doses, half with sowing while the remaining half added at the tillering stage, .The soil of field experiment was characterized by Chopman and Pratt (1961), Hesse, (1972), Soltan pour and Schwab, (1977) and Page, (1982), and Ryan *et al*, (2001). The soil characterize by high PH value, high Calcium carbonate content, low organic matter content and the soil has silty clay texture Table (1). The experimental plots comprised four rows with three meters in length and (0.20 m) distance between rows.

The grains were sowed on 28/11 and 28/12/2016 with sowing rate 120 kg ha^{-1} including bread wheat Maxipak cultivar. The date of spraying herbicide was, 7/2 and 15/2 /2017 according to planting dates and weed sampling were done after 100 days. The dry weight were recorded by using oven drying at (75 C^0) for (48) hrs. The experiment were arranged as factorial experimental in Randomized Complete Block Design in three replications and under 275 mm rainfall in the growing season . All data were recorded on ten plants selected randomly from each experimental unit. The studied plant traits were plant height, number of grain $spike^{-1}$, 1000 grain weight, grain yield per m^2 and number and weight of broad and narrow leave weeds. The data were statistically analyzed by using Minitab package (16) and Duncan's Multiple Range Test (DMRT) used to compare between the mean of treatments.

Table (1): Meteorically data and some physical and chemical properties of top (20-30) cm soil sample used in field experiment.

Weather properties					soil properties	
Month	Ave. Daily max.tem c^0	Ave. Daily min..tem c^0	Seasonal Relative Humidity RH %	Seasonal Rainfall mm		
		2016			Sand (gkg^{-1})	89.60
November	12.1	3.6	40.9	10.2	Silt (gkg^{-1})	486.90
December	11.6	2.04	79.4	72	Clay (gkg^{-1})	419.85
		2017			Soil texture	Silty clay
January	12.23	-0.56	73.47	29.1	PH in soil past	8. 25
February	13.76	-57.2	65.8	17.6	Ec (dsm^{-1}) at 25 c^0 in soil past	0.55
March	18.53	6.881	67.05	52.2	CaCo3 (g kg^{-1})	205.2
April	24.21	9.52	63.98	81.4	Organic matter k ha^{-1}	145
May	24.4	37.8	19	15.0	Available N k ha^{-1}	0.22
Total				277.7		

DOI: https://doi.org/10.26682/avuod.2017.20.1.10

Table (2): list of broad and narrow leaf weeds in experimental site*

Broad leaf weeds		
Common name	Scientific names	Family name
rough cocklebur	*Xanthium strumarium*	Copositae
milk thistle	*Lactuca serriola*L.	Copositae
Pinkweed	*Polygonum aviculare*	Polygonaceae
Common chicory	Cichorium intybus	Asteraceae
Sow thistles	*Sonchus oleraceus*[l]	Asteraceae
Saffron Thistle	*Carthamus lanatus*	Copositae
Centaurea	*Centaurea centaurium*	Asteraceae
field mustard	*Sinapis arvensis*	Brassicaceae
European heliotrope	*Heliotropium europaeum*	Malvaceae
cheeseweed	*Malva parviflora*	Boraginaceae
Narrow leaf weeds		
Common name	Scientific name	Family name
Wild oat	*Avena fatua*L.	Poaceae
Wild barley	*Hordeum spontaneum*	Poaceae
Animated oat	*Avena sterilis* L.	Poaceae
Small canary grass	*Phalaris minor*	Poaceae
Hood canary grass	*Phalaris paradoxa*	Poaceae
Beard grass	*Polypogon monspeliensis*	Poaceae

*Experiment field was infested with weed rough cocklebur and followed by sow thistles among broad leaf weeds whereas wild oat and wild barely among grass

RESULT AND DISCUSSION

Table (3).shows high significant effects of herbicides on all studied traits with the exception of plant height, Leaf area and days to flowering in first date of plant sowing and plant height and Leaf area in second date, but the nitrogen Levels exhibited highly significant effect in all studied traits in both dates with the exception of number and dry weight of narrow leaved weeds at the first sowing date. Effect of herbicides and nitrogen Levels interaction showed significant effects for all traits in both dates with exception of number and dry weight of narrow leaved weeds, plant height and leaf area in first date and plant height and Leaf area in second date . These results are going with those found by Ashraf *et al*. (2012)and Kelly, (2015) whom reported that an application of herbicides and nitrogen effect on weeds and wheat yield.

Journal of University of Duhok., Vol. 20, No.1 (Agri. and Vet. Sciences), Pp 73-86, 2017
DOI: https://doi.org/10.26682/avuod.2017.20.1.10

Table (3): Analysis of variance of herbicide and nitrogen levels on weeds and wheat yield in first and second planting date separately.

		MS										
		First sowing date										
SOV	df	No of broad leaved weeds /m^2	Dry weight of broad leaved weeds(g) /m^2	No of narrow leaved weeds /m^2	dry weight of narrow leaved weeds(g) /m^2	plant height (cm)	Flag leaf area cm^2	Days to flowering	No. grain .$spike^{-1}$	Grain weight $Spike^{-1}$ (g)	1000 grain weight (g)	Grain yield g /m^2
Block	2	4.771	1.04	0.9	6.31	43.54	15.98	2.688**	6.6*	0.00099	3.718	177
H	3	407.41**	102.63**	1505.85**	1127.6**	140.15	4.16	22.472**	309.4**	0.27449**	224.757**	101929**
N	3	38.24**	20.1**	9.8	3.8	2059.28**	958.09**	82.306**	280.47**	1.06997**	101.391**	64117**
H*N	9	29.91**	13.99**	6.35	11.79	11.59	10.65	7.954**	21.85**	0.03812**	20.821**	6677**
Error	30	1.99	2.782	8.12	14.24	52.91	10.67	0.399	1.41	0.00319	2.919	205
Total	47											
		Second sowing date										
Block	2	10.56	1.834	2.77	5.81	3.56	2.16	2.688**	1.28	0.01921	3.07	642
H	3	1011.74**	294.524**	850.41**	727.78**	1	5.89	0.944	369.38**	1.01534**	266.33**	30592**
N	3	84.63**	15.267*	19.63**	44.17**	2050.06**	1170.31**	273.5**	396.15**	0.77045**	142.22**	21570**
H*N	9	57.43**	14.34**	31.34**	48.71**	3.37	3.56	1.148*	45.3**	0.09035**	52.31**	7921**
Error	30	12.61**	4.515	2.99	5.27	3.38	2.95	0.465	5.42	0.02122	6.77	373
Total	47											

***, **,** indicating significant difference at 0. 05 and 0.01 probability level, respectively. H – Herbicide, N=Nitrogen fertilizer , MS = Mean square.

DOI: https://doi.org/10.26682/avuod.2017.20.1.10

Results in Table (4.) Reveals the effect of herbicides and nitrogen levels in first and second planting date. The (H_3) level affected significantly on all traits. The H_3 Level decreased significantly the number and dry weight of broad and narrow leaved weeds as compared to the weed control. Also the data in the same table indicated that H_3 level the significantly affected on days to the flowering No. of grain spike-1 ,days to flowering ,number of grain spike^{-1}, 1000 grain weight and grain yield and recorded (144.1 ,38.7 , ,42.5 g and 451.1 g respectively and with exception of plant height and Leaf area.

Regarding to nitrogen levels the N3 applied exceeded (N0, N1 and N2) and scored 97.8, 38.4 , 146.5 , 38.3 , 1.5 , 34.0 g and 264.5 g for plant height , Leaf area, days to flowering , number of grain spike^{-1}, grain weight spike^{-1} , 1000-grain weight and grain yield respectively at the first sowing date while, the N_2 Levels recorded lowest values for number and dry weight of broad leaved weeds because the competition between weed and plants wheat Amon, (1972) but the number appear more than in N_3 because the nitrogen for weeds and wheat plant in decade features in first date. In second sowing date the herbicide and nitrogen levels exhibit the same effect in first date with exception of plant height, Leaf area and day to flowering, but the nitrogen levels effected significantly on all traits with the exception of dry weight of broad Leaved weeds. because the choice of best herbicide, proper time of application and proper dose are important consideration for lucrative returns.

Journal of University of Duhok., Vol. 20, No.1 (Agri. and Vet. Sciences), Pp 73-86, 2017
DOI: https://doi.org/10.26682/avuod.2017.20.1.10

Table(4): Effect of herbicides and nitrogen levels on weeds and wheat yield in first and second planting date separately.

Treatments	No of broad leaved weeds /m^2	Dry weight of broad leaved weeds(g)/m^2	No of narrow leaved weeds /m^2	dry weight of narrow leaved weeds(g) /m^2	plant height (cm)	Flag leaf area cm^2	Days to flowering	No. grain .spike^{-1}	Grain weight Spike^{-1} (g)	1000 grain weight (g)	Grain yield g /m^2
First sowing date											
H_0	15.0a	7.9 a	26.a	23.3 a	93.2a	30.5a	141.5c	27.8 c	1.1 c	25.2 c	156.1d
H_1	6.4b	3.2 b	5.7 b	6.2 b	86.1 a	30.9 a	144.4 a	31.7 b	1.3 b	34.6 a	216.4 c
H_2	3.7c	1.6 b	4.5bc	4.1 b	88.1 a	31.0 a	142.5b	37.4 a	1.3 b	28.1 b	244.4 b
H_3	1.8d	1.7 b	2.0 c	2.2 b	85.9 a	29.7 a	144.1 a	38.7 a	1.5 a	34.5 a	274.7 a
N_0	7.0 b	4.3ab	10.7a	8.8 a	69.7 c	20.1 c	140.2d	27.8 c	0.8 c	25.8 b	165.1 c
N_1	8.9 a	5.0 a	8.6 a	8.2 a	88.7 b	26.1 b	142.5 c	32.3 b	1.3 b	31.3 a	221.3 b
N_2	4.6 c	2.2 c	9.3 a	9.4 a	97.1 a	37.5 a	143.3b	37.2 a	1.5 a	31.2 a	240.8 b
N_3	6.4 b	2.9 bc	9.7 a	9.3 a	97.8 a	38.4 a	146.5 a	38.3 a	1.5 a	34.0 a	264.5 a
Second sowing date											
H_0	24.3a	12.0 a	21.2 a	18.5 a	92.7 a	29.3 a	123.3a	28.7 d	0.7 b	25.2 c	156.1d
H_1	8.9 b	2.2 b	13.2 b	17.4 a	93.4 a	29.3 a	123.9a	34.0 c	1.4 a	34.6a	216.4 c
H_2	6.1bc	2.4 b	6.8 c	7.7 b	92.9 a	30.6 a	123.8a	37.0 b	1.3 a	28.1b	244.4b
H_3	4.0 c	1.8 b	1.7 d	2.4 c	93.0 a	30.5 a	123.9a	41.9 a	1.3 a	34.5a	274.7 a
N_0	12.6b	5.7 a	12.1 a	13.1 a	76.6 d	18.7 d	119.3b	28.6 c	0.9 c	25.8b	165.1c
N_1	13.6 a	5.4 a	10.8ab	10.7b	91.2 c	28.1 c	120.0b	33.0 b	1.1 b	31.3a	221.3b
N_2	8.4 c	3.5 a	9.0 b	9.2 b	96.1 b	30.1 b	127.8a	38.8 a	1.3 a	31.2a	240.8b
N_3	8.7 bc	3.8 a	11.0 a	13.1 a	108.a	42.7 a	128.0a	41.3 a	1.4 a	34.0a	264.5a

Means in each column followed by the same letter are not significantly different at the 5% probability level according to Duncan's Multiple Range Test. Ho = Control, H_1= 1200 topic +2000 2. 4,D ml ha^{-1}, H_2 = 1600 Topic +2400 2.4,D ml ha^{-1}, H_3 = 2000 Topic + 2800 2.4,D ml ha$^{-1.}$.and N0, N1, N2, and N3 = 0, 60, 120 and 180 kg ha^{-1} Nitrogen. respectively

Journal of University of Duhok., Vol. 20, No.1 (Agri. and Vet. Sciences), Pp 73-86, 2017
DOI: https://doi.org/10.26682/avuod.2017.20.1.10

The results indicated that the interactions between herbicide and nitrogen levels, were presented in table (5).The results indicated that the interaction affected on number and dry weight of weeds significantly. Weed number was decreased by 59%, 79% and 78% at H_1, H_2 and H_3 for broad leaved weeds, respectively and 73%, 82% and 90.6% for narrow leaved weeds at H_1, H_2 and H_3 in first date and 81%, 80% and 85% for broad leaved weeds and 5%, 59% and 87% for narrow leaved weeds at level H_1, H_2 and H_3 respectively is second date compared with control treatment .Also the data showed the highest value for plant height (102.7cm) which recorded or H_oN_2 interaction because the compete between weeds and wheat plants for water, nutrients, light and space and consequently caused great reduction in crop yield while, the maximum value for Leaf area was 40.1 cm^2 which recorded by $H_2 N_3$.The lowest days to the flowering was 140.0 days and obtained by $H_1 N_0$ .For traits (Number of grain $spike^{-1}$,grain weight $spike^{-1}$,1000-grain weight and grain yield (43.4 , 1.8g 41.4g ,and 397.1g) were recorded by H_3 N_3 respectively . In the second date, plant height and Leaf area recorded highest values by H_3 $_xN_3$ and H_2 xN_3 (109.5cm and 45. cm^2) respectively while, the minimum plant height, Leaf area recoded by control unit which was 76.7cm and 18.6 cm^2, respectively. The data in the same table, exhibited significant effects on all studied traits, for the days to flowering the lowest value was obtained by H_3 N_0 with value 119.0 days. The number of grain $spike^{-1}$ grain weight spike, 1000 grain weight and grain yield the height values was recorded by H_3N_3 with values 51.7, 1.7, 41.4 g and 397.1g ,respectively. These results appeared that H3 andN3 were effective on weed and yield and yield component of wheat. The wheat plant appeared low competition because the herbicide (H_3) was effective for controlling the weeds and therefore selection of herbicide levels is more important for controlling broad and narrow leaved weeds.

Table (5): Effect interaction between herbicide and nitrogen levels on weeds and wheat yield in first and second planting date.

H	N	No of broad leaved weeds /m^2	Dry weight of broad leaved weeds(g) /m^2	No of narrow leaved weeds /m^2	dry weight of narrow leaved weeds(g) /m^2	plant height (cm)	Flag leaf area cm^2	Days to flowering	No. grain .$spike^{-1}$	Grain weight $Spike^{-1}$ (g)	1000 grain weight (g)	Grain yield g /m^2
First date												
H_0	N_0	14.0 b	8.5 a b	27.7 a	19.6 a b	77.1 bcd	20.7 d e	140.3 e	24.7 h	0.8 f	25.0 e f	172.4 h
	N_1	23.3 a	13.6 a	24.3 a	23.1 a	92.8 a b	29.4bcd	140.7 d e	28.1 e-h	1.1 e	28.2 c-f	188.7 h
	N_2	10.0bcd	3.6b c d	25.0 a	25.2 a	102.7 a	34.9abc	142.7 c	28.5 efg	1.3 c d	23.2 f	210.8 gh
	N_3	12.7 b c	5.8 b c	28.0 a	25.1 a	100.4 a	37.2 ab	142.3 c d	29.9 def	1.2 d e	24.2 e f	232.4 f g
H_1	N_0	6.0 d e	3.3 c d	5.7 b	6.7 c	65.3 d	20.1 d e	140.0 e	26.3 gh	0.9 f	31.2 b-e	285.3 e
	N_1	5.3 e f	2.7 c d	4.0 b	4.0 c	88.2 abc	25.8cde	144.0 b c	31.5cde	1.4 b c	34.3 a-d	334.0 d
	N_2	4.7 e f	2.9 c d	6.0 b	5.9 c	93.6 a b	39.8 a	144.0 b c	34.2 b c	1.4bcd	36.8 ab	408.8 c
	N_3	9.7 c d	4.1b c d	7.0 b	8.1 b c	97.3 a b	37.9 ab	149.7 a	34.8 b c	1.5 b c	36.1abc	417.0 b c
H_2	N_0	5.3 e f	2.0 c d	7.3 b	6.4 c	68.0 cd	20.8 d e	140.0 e	27.6fgh	0.9 f	24.8 ef	281.1 e
	N_1	5.3 e f	2.0 c d	3.7 b	3.5 c	89.5 abc	24.6 d e	142.7 c	34.1 b c	1.4bcd	26.2 ef	352.9 d
	N_2	2.0 e f	1.2 c d	4.7 b	4.3 c	96.4 a b	38.4 ab	142.7 c	42.8 a	1.4bcd	27.0 def	410.3 c
	N_3	2.0 e f	1.4 c d	2.3 b	2.2 c	98.4 a b	40.1 a	144.7 b	45.2 a	1.5 b	34.5 a-d	460.0 b
H_3	N_0	2.7 e f	3.4b c d	2.3 b	2.6 c	68.2 cd	18.6 e	140.3 e	32.6bcd	0.8 f	22.4 f	274.1 e f
	N_1	1.7 f	1.9 c d	2.3 b	2.1 c	84.5 a-d	24.7 d e	142.7 c	35.6 b	1.5 b	36.4 ab	351.7 d
	N_2	1.7 f	1.0 c d	1.7 b	2.1 c	95.7 a b	36.9 ab	144.0 b c	43.1 a	1.7 a	37.7 ab	417.2 b c
	N_3	1.3 f	0.6 d	1.7 b	1.9 c	95.7 a b	38.5 ab	149.3 a	43.4 a	1.8 a	41.4 a	172.4 h
Second sowing date												

DOI: https://doi.org/10.26682/avuod.2017.20.1.10

H_0	N_0	26.7a b	14.9 a	24.0 a	22.2a b	76.7 e	18.6 c	119.3 b c	26.8gh	0.6 e	25.0 e f	166.1 f g
	N_1	34.7 a	15.6 a	16.7 b c	16.6bcd	90.7 d	27.8 b	119.3 b c	24.0 h	0.7 d e	28.2 c-f	175.9 f g
	N_2	14.7 c d	6.3 b c	18.3 b	16.0bcd	96.1bcd	30.3 b	127.3 a	31.8efg	0.9 d e	23.2 f	147.1 f g
	N_3	21.0 b c	11.3 a b	25.7 a	19.2 b c	107.4 a	40.6 a	127.3 a	32.1efg	0.8 d e	24.2 e f	135.4 g
H_1	N_0	13.7cde	3.3 c	12.3cde	13.7cde	77.2 e	18.0 c	119.3 b c	30.5fgh	0.9 d e	31.2b-e	185.7 efg
	N_1	7.7 d e	1.8 c	18.0 b	15.4 b-e	91.4c d	27.8 b	128.3 a	32.1 efg	1.5 ab	34.3a-d	199.0 def
	N_2	8.7 d e	2.5 c	12.7 c d	13.6cde	96.9 b c	30.3 b	119.3 b c	35.1def	1.5abc	36.4 ab	235.6 cde
	N_3	5.7 d e	1.3 c	10.0def	27.0 a	108.0 a	41.2 a	128.7 a	38.5cde	1.5 abc	36.1abc	245.4 bcd
H_2	N_0	6.3 d e	2.5 c	10.0def	12.0 d e	90.6 d	18.5 c	119.3 b c	29.2fgh	0.9 d e	24.8 ef	160.1 f g
	N_1	7.3 d e	2.5 c	7.3efg	9.0 e f	76.0 e	28.9 b	120.0 b c	33.0efg	1.1bcd	26.2 e f	257.7bcd
	N_2	6.3 d e	2.8 c	3.3 ghi	5.0 f g	97.3 b	30.0 b	127.7 a	42.1bcd	1.4 abc	27.0 def	279.9 b c
	N_3	4.3 d e	1.7 c	6.7fgh	4.7 f g	107.7 a	45.1 a	128.3 a	43.6 b c	1.7 a	34.5a-d	280.1 b c
H_3	N_0	3 3.7 e	2.3 c	2.0 h i	4.3 f g	76.3 e	19.8 c	119.0 c	27.8 gh	0.9 d e	22.4 f	148.5 f g
	N_1	4.7 d e	1.6 c	1.3 i	2.0 g	92.1bcd	28.1 b	121.3 b	42.7 b c	1.1 cd	36.8 ab	252.7 bcd
	N_2	4.0 d e	2.3 c	1.7 h i	2.0 g	94.1bcd	29.9 b	127.7 a	46.1a b	1.6 ab	37.7 ab	300.5 b
	N_3	3 3.7 e	0.9 c	1.7 h i	1.4 g	109.5 a	44.0 a	127.7 a	51.1 a	1.7 a	41.4 a	397.1 a

Number fallowed by the same letters in the same column is significant difference at 0.05 probability level. Ho = Control, H_1= 1200 topic +2000 2. 4,D ml ha^{-1}, H_2 = 1600 Topic +2400 2.4,D ml ha^{-1}, H_3 = 2000 Topic + 2800 2.4,D ml ha^{-1}.and N0, N1, N2, and N3 = 0, 60, 120 and 180 kg ha^{-1} Nitrogen. respectively.

Table (6) shows combined analysis for herbicides and nitrogen levels the results exhibited highly significant effects for herbicide levels (H) in all studied traits with the exception of plant height and leaf area, while the nitrogen levels showed significant effects for all studied traits except dry weight of narrow leaved weeds. on other hand the date of planting (T) gave high significant results for all studied traits. The effect of interactions H x N, H x T, N x T showed high significant values for all studied traits excluding plant height, leaf area, number of broad and leaved weeds and number of grain $spike^{-1}$. Also the interaction of H x N x T gave significant effects for all traits with the exception of dry weight of broad and narrow leaved weeds, plant height, leaf area and grain yield

Table (6): Statistical analysis of the effect of herbicide, nitrogen fertilizer and planting dates on growth of weeds and wheat yield.

SOV	df	MS										
		No of broad leaved weeds $/m^2$	Dry weight of broad leaved weeds(g)$/m^2$	No of narrow leaved weeds $/m^2$	dry weight of narrow leaved weeds(g) $/m^2$	plant height (cm)	Flag leaf area cm^2	Days to flowering	No. grain .$spike^{-1}$	Grain weight $Spike^{-1}$ (g)	1000 grain weight (g)	Grain yield g $/m^2$
block	2	5.64**	2.339*	0.82	10.13	11.12	3.2	4.03**	1.04	0.0061	2.076	275
H	3	1347.9**	367.13**	2188.6**	1584.9**	61.16	3.59	15.71**	662.7**	1.06**	424.89**	119800**
N	3	110.85**	34.006**	22.53**	23.98	3962.7**	1973.4**	301.2**	669.6**	1.79**	230.72**	78570**
T	1	400.17**	23.236**	30.37*	160.4**	523.46**	8.55**	9009.4**	54.90**	0.241**	147.26**	308782**
H *N	9	71.84**	25.152**	22.89**	37.21**	5.92	8.71	4.68**	44.54**	0.097**	63.07**	14055**
H*T	3	71.31	30.032**	167.68**	270.5**	79.99*	6.46	7.71**	16.10**	0.230**	65.96**	12721**
N*T	3	12.03	1.416**	6.9	23.99*	146.65**	155.01**	54.57**	7.00	0.048*	13.247**	7117**
H*N*T	9	15.5*	3.177	14.8**	23.28	9.03	5.5	4.42**	22.61**	0.0312*	10.198*	543
Error	62	7.38	3.548	5.47	9.51*	28.4	7.07	0.46**	3.53	0.01226	4.809*	297
Total	95											

***, **,** indicating significant difference at 0. 05 and 0.01 probability level respectively. Ho = Control, H_1= 1200 topic +2000 2. 4,D ml ha^{-1}, H_2 = 1600 Topic +2400 2.4,D ml ha^{-1}, H_3 = 2000 Topic + 2800 2.4,D ml ha^{-1}.and N0, N1, N2, and N3 = 0, 60, 120 and 180 kg ha^{-1} Nitrogen. respectively. .D_1-First Planting date, D_2 Second planting date.

Journal of University of Duhok., Vol. 20, No.1 (Agri. and Vet. Sciences), Pp 73-86, 2017
DOI: https://doi.org/10.26682/avuod.2017.20.1.10

The data in Table (7). showed that the number of broad and narrow leaved weeds decreased significantly with the increasing of herbicide levels and the maximum value of broad and marrow leaved weed was 41.0 for control treatment while, H3 treatment recorded the broad and narrow leaved weed with value 4.0,this mean of the H_3 Level was more effective to kill maximum number of broad and narrow leaved weed ,These results supported by findings of Iqbal and Wright,(1997).

Maximum plant height value (93.0 cm) obtained by check treatment as the competition increased between weed and wheat plants. The maximum value of Leaf area (30.1cm^2) was recorded by H_3. As for days to the flowering the minimum value (132.4 days) obtained by H_0, this main the wheat plants were exposed to stress from weed plants. Regarding yield and yield components, the results in same table showed, that H_3 gave the maximum values for the number of grain spike^{-1}, grain weight, 1000-grain weight and grain yield with values 40.3, 1.4g, 36.3g and 340.8 g m^2 respectively.

For nitrogen application, the check treatment (N_0) and (N_1) Level recorded the maximum values for broad and narrow leaved weed with values 9,8, 11.4, 11.3 9.7 respectively. The N_3 Levels gave the maximum plant height (103.0cm) and 40.6 cm^2 for leaf area. While, the level N_0 exhibited the lowest days to the flowering and obtained (129.7 days) this means increasing of nitrogen caused increasing of plant growth. The Level N_3 recorded the maximum value for number of grains spike^{-1} (39.8), grain weight spike^{-1} (1.59),1000-grain weight (35.0 g)and grain yield with value 344.0 g m^2. Regarding dates of planting, the first date obtained the minimum values for number and dry weight of broad and narrow leaved weeds, whereas, the first date was superior in the rest of all traits, (plant height, Leaf area grain weight spike^{-1}, 1000-grain weight and grain weight) this means period of growth was more effective to produce a good growth and gave high yield and yield component

Table (7): Effect of herbicide, Nitrogen levels and Date on weeds and wheat yield.

Herbicide	No of broad leaved weeds /m^2	dry weight of broad leaved weeds (g)/ m^2	No of narrow leaved weeds/ m^2	dry weight of narrow leaved weeds (g) /m^2	plant height (cm)	Flag Leaf area cm^2	Days to flowering	No. grain. spike^{-1}	Grain weight Spike^{-1} (g)	1000 grain weight (g)	Grain yield g /m^2
H_0	19.6a	9.9a	23.7a	20.9a	93.0 a	29.9a	132.4c	28.2d	0.9c	26.4d	178.6 d
H_1	7.7b	2.7b	9.5b	11.8b	90.5 a	30.1a	134.2a	32.9c	1.3ab	33.5b	288.8 c
H_2	4.9c	2.0b	5.7c	5.9c	89.8a	30.8a	133.2b	37.2b	1.3b	31.0c	310.3 b
H_3	2.9c	1.7b	1.8d	2.3d	89.5a	30.1a	134.0a	40.3a	1.4a	36.3a	340.8 a
N_0	9.8a	5.0a	11.4a	10.9a	73.1d	19.4d	129.7d	28.2d	0.8 c	27.7c	209.2 d
N_1	11.3a	5.2a	9.7ab	9.5a	90.0c	27.1c	131.3c	32.6c	1.2 b	31.6b	264.1 c
N_2	6.5b	2.8b	9.2 b	9.3a	96.6b	33.8b	135.5b	38.0b	1.4 a	33.0b	301.3 b
N_3	7.5b	3.4b	10.4ab	11.2a	103.0a	40.6a	137.3a	39.8a	1.5 a	35.0a	344.0 a
D_1	6.7b	3.6 b	9.6 b	8.9b	88.3b	30.5a	143.1a	33.9b	1.3 a	33.1a	336.3a
D_2	10.8a	4.6 a	10.7 a	11.5a	93.0a	29.9a	123.7b	35.4a	1.2 b	30.6b	222.9b

Means in each column followed by the same letter are not significantly different at the 5% probability level according to Duncan's Multiple Range Test. Ho = Control, H_1= 1200 topic +2000 2. 4,D ml ha^{-1}, H_2 = 1600 Topic +2400 2.4,D ml ha^{-1}, H_3 = 2000 Topic + 2800 2.4,D ml ha^{-1}.and N0, N1, N2, and N3 = 0, 60, 120 and 180 kg ha^{-1} Nitrogen respectively, D1- First planting date , D2 – Second planting date.

Journal of University of Duhok., Vol. 20, No.1 (Agri. and Vet. Sciences), Pp 73-86, 2017
DOI: https://doi.org/10.26682/avuod.2017.20.1.10

Table (8) shows an interaction between herbicide and nitrogen levels. The maximum number and dry weight of broad and narrow level weed were recorded by H_0 N_1 and H_0 N_3 with values 29.0, 14.6 g, 26.8 and 22.2 g respectively while the minimum values for above traits were obtained by H_3 N_3. This means that herbicides were more effective to kill broad and narrow leave weeds and significant decreases found for broad and narrow leaved weed as a result of herbicide and nitrogen application together. The H_0 N_3 interaction gave the maximum value for plant height (103.9 cm) while the minimum plant height was recorded by H_1 N_0 (71.3 cm). For leaf area the highest value (42.6cm^2) was recorded by H_2 N_3 and followed by H_3 N_3. The lowest value for days to flowering was obtained by different interaction (H_1 N_0, H_2 N_0 and H_3 N_0 this main the wheat plants with low or zero application nitrogen causes early maturity of wheat plant while depending on interaction effects between herbicides and nitrogen levels in number of grain spike^{-1},grain weight spike(g) 1000-grain weight(g) and grain yield . H_3 N_3 produced the highest values with average 47.2, 1.8 g, 42.7g and 491.0 g respectively, from these results the H_3 killed the most broad and narrow leaved weeds and the wheat plant exhibited more responses with the high nitrogen levels comparing with check treatment .These result are in agreement with those found by Sheibani and Ghadiri,(2012) and Safar *et al.,* (2015), whom reported that an application of herbicides and nitrogen levels caused even a high increase in wheat yield and yield components, but resulted in a higher reduction in weed when compared with control treatment.

Table (8): Interactions effects of herbicides and nitrogen levels on weeds and wheat yield.

Treatments H	N	No of broad leaved weeds /m^2	dry weight of broad leaved weeds (g)/ m^2	No of narrow leaved weeds/ m^2	dry weight of narrow leaved weeds (g) /m^2	plant height (cm)	Flag Leaf area cm^2	Days to flowering	No. grain. spike^{-1}	Grain weight Spike^{-1} (g)	1000 grain weight (g)	Grain yield g /m^2
H_0	N_0	20.3b	11.7 ab	25.8ab	20.9 a	76.9 e	19.7 f	129.8f	25.7 i	0.7 i	25.1 G	169.3 I
	N_1	29.0a	14.6 a	20.5 c	19.8 a	91.7 bcd	28.6 de	130.0 ef	26.0 i	0.9 hi	28.2efg	182.3 hI
	N_2	12.3cd	5.0 cd	21.7bc	20.6 a	99.4 abc	32.6 cd	135.0 c	30.2gh	1.1 fh	25.9 g	179.0 hi
	N_3	16.8bc	8.5 bc	26.8 a	22.2 a	103.9 a	38.9 ab	134.8 c	31.0fgh	1.0gh	26.5efg	183.9 hi
H_1	N_0	9.8de	3.3 de	9.0def	10.2 b	71.3 e	19.1 f	129.7f	28.4 hi	0.9 hi	30.9d e	235.5 fg
	N_1	6.5ef	2.3 de	11.0 d	9.7 bc	89.8 c d	26.8 e	131.7 d	31.8fgh	1.5bcd	33.4 cd	266.5 f
	N_2	6.7 ef	2.7 de	9.3 de	9.8 bc	95.2 a-d	35.0 bc	136.2 b c	34.6 ef	1.1f-h	34.9 cd	322.2 de
	N_3	7.7def	2.7 de	8.5d-g	17.4 a	102.7 a b	39.6 ab	139.2 a	36.6de	1.5 b-e	35.0 c d	331.2cde
H_2	N_0	5.8ef	2.3 de	8.7 d-g	9.2 bc	72.0 e	19.7 f	129.7f	28.4 hi	0.9 hi	28.6 efg	220.6 g
	N_1	6.3ef	2.3 de	5.5e-h	6.2 bcd	90.0 c d	26.7 e	131.3 de	33.5 efg	1.2 efg	28.7efg	305.3 e
	N_2	4.2 f	2.0 de	4.0G h	4.7 bcd	96.8 a-d	34.2 bc	135.2 bc	42.4 bc	1.4cde	30.8def	345.1bcd
	N_3	3.2 f	1.6 de	4.5 fgh	3.4 cd	103.0 a	42.6 a	136.5 b	44.4ab	1.6abc	35.9 b c	370.0 b
H_3	N_0	3.2 f	2.9 de	2.2 h	3.4 cd	72.3 e	19.2 f	129.7f	30.2 gh	0.9 hi	26.3f g	211.3 gh
	N_1	3.2 f	1.7 de	1.8 h	2.1 d	88.3 d	26.4 e	132.0 d	39.2 cd	1.3 def	36.0 bc	302.2 e
	N_2	2.8 f	1.7 de	1.7 H	2.0 d	94.9 a-d	33.4 cd	135.8 bc	44.6 ab	1.7 ab	40.3 ab	358.8 bc
	N_3	2.5 f	0.7 e	1.7 H	1.6 d	102.4 a b	41.3 a	138.5 a	47.2 a	1.8 a	42.7 a	491.0 a

Means in each column followed by the same letter are not significantly different at the 5% probability level according to Duncan's Multiple Range Test. Ho = Control, H_1= 1200 topic +2000 2. 4,D ml ha^{-1}, H_2 = 1600 Topic +2400 2.4,D ml ha^{-1}, H_3 = 2000 Topic + 2800 2.4,D ml ha^{-1}.and N0, N1, N2, and N3 = 0, 60, 120 and 180 kg ha^{-1} Nitrogen respectively.

Journal of University of Duhok., Vol. 20, No.1 (Agri. and Vet. Sciences), Pp 73-86, 2017
DOI: https://doi.org/10.26682/avuod.2017.20.1.10

Table (9) shows the interaction between each of herbicide and nitrogen levels with dates of planting .The results exhibited that the maximum number and weight of both types of weeds appeared in second date and the values were 24.2, 12.0 g, 21.2 and 18.5 g for broad and narrow leaved weeds and also the same results appeared with zero nitrogen and recorded 12.6, 5.7 g, 12.1 and 13.1 g respectively ,This means that the weeds (broad and narrow) appeared late in the first date compared with the second date .The second date gave the highest plant height in H_1 N_3 interaction and recorded 93.4 and 108.1cm respectively .,and the same date of sowing obtained the maximum value for leaf area (42.7 cm^2)while the first date of sowing gave the maximum value (31.0 $cm^{2)}$ by H_2 herbicide the H_3 N_3 recorded the longest period to days to flowering with values 144.1 and 146,5 days respectively .For number of grain $spike^{-1}$, the second date produce the maximum values (41.9 and 41.3) by H_3 and N_3 while the first date recorded the highest values were 1.5 g, 38.2 g, 407.0 g ,36.0 g and 423.6 g by H_3 and N_3 because the late planting date may also shorten the grain filling period. Iqbal and Wright (1997).

Table (9): Interaction effect between herbicide, nitrogen levels and dates on weeds and wheat yield.

Treatments		No of broad leaved weeds /m^2	dry weight of broad leaved weeds (g)/ m^2	No of narrow leaved weeds/ m^2	dry weight of narrow leaved weeds (g) /m^2	plant height (cm)	Flag Leaf area cm^2	Days to flowering	No. grain. $spike^{-1}$	Grain weight $Spike^{-1}$ (g)	1000 grain weight (g)	Grain yield g /m^2
H	D											
H_0	D_1	15.0 b	7.9 b	26.2 a	23.3 a	93.2 a	30.5a	141.5c	27.8 d	1.1 c	27.7cd	201.1 e
	D_2	24.2 a	12.0 a	21.2 b	18.5 b	92.7abc	29.3a	123.3d	28.7 d	0.7 d	25.2d	156.1 f
H_1	D_1	6.4 c d	3.2 c	5.7 d	6.2 cd	86.1 b c	30.9a	144.4a	31.7 c	1.3 b	32.5b	361.3b
	D_2	8.9 c	2.2 c	13.3 c	17.4 b	93.4 a	29.3a	123.9d	34.0 c	1.4 ab	34.6b	126.4 e
H_2	D_1	3.7 d e	1.6 c	4.5 d e	4.1 cde	88.1abc	31.0a	142.5b	37.4 b	1.3 b	33.8b	376.1b
	D_2	6.1 c d	2.4 c	6.8 d	7.7 c	92.9a b	30.6a	123.8d	37.0 b	1.3 b	28.1 c	244.4 d
H_3	D_1	1.8 e	1.7 c	2.0 e	2.2 e	85.9 c	29.7a	144.1a	38.7 b	1.5 a	38.2a	407.0 a
	D_2	4.0 de	1.8 c	1.7 e	2.4 de	93.0 a	30.5a	123.9d	41.9 a	1.3 b	34.5b	274.7 c
N_0	D_1	7.0bc	4.3abc	10.8 ab	8.8 b	69.7 e	20.1 e	140.2c	27.8d	0.8 d	29.6 c	253.2de
	D_2	12.6a	5.7 a	12.1 a	13.1 a	76.6 d	18.7 e	119.2e	28.6d	0.9 d	25.8 d	165.1 g
N_1	D_1	8.9 b	5.0ab	8.6 b	8.2 b	88.7 c	26.1 d	142.5b	32.3c	1.3 b	31.9bc	306.8 c
	D_2	13.6a	5.4a	10.8 ab	10.7ab	91.2bc	28.1cd	120.0e	32.9c	1.1 c	31.3bc	221.3 f
N_2	D_1	4.6 c	2.2c	9.3 a b	9.4 ab	97.1 b	37.5 b	143.3b	37.1b	1.5 ab	34.8 a	361.8 b
	D_2	8.4 b	3.5abc	9.0 b	9.2 ab	96.1 b	30.1 c	127.7d	38.8b	1.3 b	31.2 c	240.8 ef
N_3	D_1	6.4bc	2.9bc	9.8 a b	9.3 ab	97.8 b	38.4 b	146.5a	38.3b	1.5 a	36.0 a	423.6 a
	D_2	8.7 b	3.8abc	11.0 ab	13.1 a	108.1a	42.7 a	128.0d	41.3a	1.4 a b	34.0ab	264.5 d

Means in each column followed by the same letter are not significantly different at the 5% probability level according to Duncan's Multiple Range Test. Ho = Control, H_1= 1200 topic +2000 2. 4,D ml ha^{-1}, H_2 = 1600 Topic +2400 2.4,D ml ha^{-1}, H_3 = 2000 Topic + 2800 2.4,D ml ha^{-1}.and N0, N1, N2, and N3 = 0, 60, 120 and 180 kg ha^{-1} Nitrogen, D1- First planting date , D2 – Second planting date.

The data represented in Table (10) showed significant differences of triple interaction between herbicides, nitrogen levels and date of planting. For number and dry weight of broad and narrow leaved weeds, the second order interaction of H_0 N1 D_2 exhibited maximum values (34.7 and 15.6 g) while, the maximum value (28.0 and 27.0 g) for number and weight of narrow leaved weed were obtained by H_1 N_3 D_2 respectively. For plant height and leaf area, the highest values produced by H_2N_3 D_2 and H_2 N_3 D_2 which were 109.5 cm and 45.1 cm^2. The lowest value of days to flowering was 119. days and recorded by H_0 N_0 D_2 interaction because the competition was more between weed and wheat plants. While the interaction H_3 N_3 D_2 gave the highest value which was 51.1 For grain- $spike^{-1}$, while the interaction H_3 N_3 D_1 produced the maximum values (1.8g,

Journal of University of Duhok., Vol. 20, No.1 (Agri. and Vet. Sciences), Pp 73-86, 2017
DOI: https://doi.org/10.26682/avuod.2017.20.1.10

44.1 g and 584.8 g) for grain weight. spike^{-1}, 1000 grain weight and grain yield respectively. The previous results appear that interaction effect between H_3, N_3 and D_1 was success folly reduced competition between wheat plants and weeds in healthy crop stand and was effective on increasing the previous traits. These results were agreed with those found by, Baghestani *et al*., (2008), Stantos, (2009) and khaliq *et al*., (2011).

Table (10): Interaction effect between herbicide, nitrogen levels and dates of sowing on weeds and wheat yield.

H	N	D	No of broad leaved weeds /m^2	dry weight of broad leaved weeds (g)/ m^2	No of narrow leaved weeds/ m^2	dry weight of narrow leaved weeds (g) /m^2	plant height (cm)	Flag Leaf area cm^2	Days to flowering	No. grain. spike^{-1}	Grain weight Spike^{-1} (g)	1000 grain weight (g)	Grain yield g /m^2
H_0	N_0	D_1	14.0def	8.5bcd	27.7 a	19.6a-d	77.1f-j	20.7ijk	140.3ef	24.7 lm	0.8 ijk	25.1jkl	172.4 mno
		D_2	26.7 ab	14.9a	24.0a-d	22.2abc	76.7g-j	18.6 k	119. hi	26.8j-m	0.6 k	25.0jkl	166.1 mno
	N_1	D_1	23.3 bc	13.6ab	24.3abc	23.1abc	92.8a-h	29.4d-h	140.7def	28.1h-m	1.1 g-j	28.2g-l	188.7 l-o
		D_2	34.7 a	15.6a	16.7def	16.6b-e	90.7c-h	27.8f-j	119.3hi	24.0 m	0.7 j k	28.2g-l	175.9 mno
	N_2	D_1	10.0eh	3.6de	25.0abc	25.1ab	102.7a-d	34.9b-f	142.7bcd	28.5g-m	1.3 d-g	28.6f-l	210.8 j-m
		D_2	14.7cde	6.3cde	18.3b-e	25.2ab	96.1a-e	30.3c-g	127.3g	31.8e-k	0.9 i jk	23.2 kl	147.1 n o
	N_3	D_1	12.7d-g	5.8 cde	28.0 a	16.0b-f	100.4a-e	37.2a-e	142.3cde	29.9e-m	1.2 d-h	28.8f-l	232.4 i-l
		D_2	21.0bcd	11.3abc	25.7 ab	19.2a-d	107.4abc	40.6 ab	127.3g	32.1 ek	0.8 i jk	24.2jkl	135.4 o
H_1	N_0	D_1	6.0e-h	3.3de	5.7ghi	6.7e-j	65.3 j	20.1 jk	140.0f	26.3klm	0.9 i jk	30.6e-j	285.3g h i
		D_2	13.7def	3.3de	12.3efg	13.7c-h	77.2f-j	18.0 k	119.3hi	30.5e-l	0.9 h-k	31.2d-j	185.7 l-o
	N_1	D_1	5.3fgh	2.7de	4.0 hi	4.0hij	88.2d-h	25.8g-k	144.0bc	31.5e-k	1.4 b-g	32.5d-i	334.0 f g
		D_2	7.7e-h	1.8 e	18.0cde	15.4b-g	91.4b-h	27.8f-j	119.3hi	32.1e-k	1.5a-d	34.3c-g	199.0 k-n
	N_2	D_1	4.7 gh	2.9de	6.0ghi	5.9g-j	93.6a-g	39.8 ab	144.0bc	34.2d-g	1.4 c-g	33.0d-i	408.8bcd
		D_2	8.7e-h	2.5de	12.7efg	13.6c-h	96.9a-e	30.3c-g	128.3g	35.1def	1.5a-d	36.8b-e	235.6 i-l
	N_3	D_1	9.7e-h	4.1de	7.0ghi	8.1e-j	97.3a-e	37.9a-d	149.7a	34.8def	1.5 b-e	34.0d-h	417.0b c
		D_2	5.7fgh	1.3 e	10.0fgh	27.0a	108.0 ab	41.2 ab	128.7g	38.5 cd	1.5a-e	36.1b-e	245.4 h-k
H_2	N_0	D_1	5.3fgh	2.0 e	7.3ghi	6.4f-j	68.0 ij	20.8h-k	140.0f	27.6i-m	0.9 h-k	32.3d-i	281.1g h i
		D_2	6.3e-h	2.5de	10.0fgh	12.0d-i	76.0hij	18.5 k	119.3hi	29.2f-m	0.9 h-k	24.8jkl	160.1 mno
	N_1	D_1	5.3fgh	2.0 e	3.7 hi	3.5ij	89.5d-h	24.6g-k	142.7bcd	34.1d-h	1.4 c-g	31.2d-j	352.9 def
		D_2	7.3e-h	2.5de	7.3ghi	9.0e-j	90.6c-h	28.9e-i	120.0hi	33.0d-i	1.1 e-i	26.2i-l	257.7 h i j
	N_2	D_1	2.0 h	1.2 e	4.7 hi	4.3hij	89.5 d-h	38.4abc	142.7bcd	42.8 bc	1.4 b-g	34.6f-g	410.3b c
		D_2	6.3e-h	2.8de	3.3 hi	5.0hij	96.4a-e	30.0c-g	127.7g	42.1 bc	1.4 b-f	27.0h-l	279.9g h i
	N_3	D_1	2.0 h	1.4 e	2.3 i	2.2ij	98.4a-e	40.1 ab	144.7b	45.2 ab	1.5a-e	37.3a-e	460.0 b
		D_2	4.3 gh	1.7 e	6.7ghi	4.7hij	107.7abc	45.1 a	128.3g	43.6 bc	1.7 ab	34.5c-g	280.1g h i
H_3	N_0	D_1	2.7 h	3.4de	2.3 i	2.6ij	68.2 ij	18.6 k	140.3ef	32.6d-j	0.8 i jk	30.2e-k	274.1 h i
		D_2	3.7 h	2.3 e	2.0 i	4.3hij	76.3 g-j	19.8 jk	119.0 i	27.8i-m	0.9 hk	22.4l	148.5 n o
	N_1	D_1	1.7 h	1.9 e	2.3 i	2.1ij	84.5 e-i	24.7g-k	142.7bcd	35.6 de	1.5a-e	35.6c-f	351.7 e f
		D_2	4.7 gh	1.6 e	1.3 i	2.0j	92.1b-h	28.1f-j	121.3h	42.7 bc	1.1 f-i	36.4b-e	252.7 h –k
	N_2	D_1	1.7 h	1.0 e	1.7 i	2.1ij	76.3g-j	36.9a-e	144.0bc	43.1 bc	1.7 a b	43.0a b	417.2b c
		D_2	4.0 gh	2.3 e	1.7 i	2.0j	84.5e-i	29.9c-g	127.7g	46.1 ab	1.6a-d	37.7a-d	300.5 fgh
	N_3	D_1	1.3 h	0.6 e	1.7 i	1.9j	95.2a-e	38.5abc	149.3a	43.4 bc	1.8 a	44.1 a	584.8 a
		D_2	3.7 h	0.9 e	1.7 i	1.4j	109.5 a	44.0 a	127.7g	51.1 a	1.7abc	41.4abc	397.1cde

Means in each column followed by the same letter are not significantly different at the 5% probability level according to Duncan's Multiple Range Test. Ho = Control, H_1= 1200 topic +2000 2. 4,D ml ha^{-1}, H_2 = 1600 Topic +2400 2.4,D ml ha^{-1}, H_3 = 2000 Topic + 2800 2.4,D ml ha^{-1}.and N0, N1, N2, and N3 = 0, 60, 120 and 180 kg ha^{-1} Nitrogen respectively, D1- First planting date , D2 – Second planting date.

DOI: https://doi.org/10.26682/avuod.2017.20.1.10

REFERENCES

- Amon,l.1972. Plant population and distribution pattems in crops production in dry region. and micro nutrient in alkalin, soil communications in soil sci. and plant analysis 8.195-207.and rain fall on winter wheat yields in the pacific northwest Agron. J. 95- pp 828-835.application method in controlling weeds in wheat crop. Pak.J.weedsci.Res., 11: 22-30.
- Ashraf, M.A, M. Ashraf ,M. Shahbaz.2012. Growth stage .based modulation in antioxidant defense system and proline accumulation in two hexaploid wheat (TriticumaestivumL.)Cultivars differing in salinity tolerance. Flora.207.388-397.
- Baghestani ,M. Deihimfard. 2008. Study of the efficacy of weed control in wheat (*Triticum aestivum* L.) with tank A,E. Zand,S. fizaden M,Beheshtain, A. Haghighi, A. Barjasteh, D. G. Birgani and R. mixture `of grass herbicides . Crop prot. 27, pp:104-111.
- Doberman, A. and K.G. Cassman .2004. Enviromental dimensions of fertilize nitrogen; what can be done to increase nitrogen use efficiency and ensure global food security? 261- 278 . In :- Agriculture and the nitrogen cycle :- Assessing the impacts of fertilizer use on food production and Environment, (Eds. Mosier AR, Syers Jk and Freney JR), SCOPE 65 , Paris, France.
- Fayad, T.B., S.R.S..Sabry, and E.S.H. Aboul.,1998. Effect of herbicides on weed density, wheat grain yield and yield components . Conf. Weed Biol. and Control. Stuttgat- Hohenheinm, Germany, 14 March 1998.
- Food and Agriculture Organization (FA0). 2010. Crops statistics – concepts, definitions and classifications. Retrieved May 29, 2010 from. statistics-concepts-definitions-and-classifications/en/http://wwwfao.org/economic/ess/methodology/methodology-systems/crops-
- Hesse,P.R.A Text book of soil analysis. Chemical publishing Co., Lus. New York (1972).
- Iqbal, J. and D. wright.1997. Effect of nitrogen supply on competition between wheat and three annual weeds species. Weed Res. 37:- 391-400.
- Kelly, A. N. 2015.Winter Annual weed Response to Nitrogen Source and Application Timing prior to a Burndown corn herbicid. Internation Journai of Agronomy (1): 1-7 .
- Khaliq,. A, A. Matloob, A. Tanveer , A. Areeb F. Aslam and N. Abbas. 2011. Reduced doses of asulfonlurea herbicide for weed management in wheat fields of Punjab, Paskistan. Chilean J. Agric. Res., 71, pp: 424-429.
- Kim, D.S, E.G.P,Marshall,J.C. Caseley and P.Brain. 2006.Modeling interaction between herbicide
- Bib, K.T., H. Gul and N.M khan.2008. Effect of herbicides and wheat population on control of grain yield and yield components. Conf. weed boil. and control. Stuttgat -Hohenheinm, herbicide and nitrogen fertilizer in terms of weed response. Weed Research 46(6): 480-491.
- Bungard,R.A., A.Wingler, J.R.Morton, and M.Andrews. 1999. Aluminum can stimulate Calif, Davis, Division of Agric. sci.P:309.
- Camara. K.M., W.A Payne and P. E Rasmussen.2003. Longoterm effect at tillage, nitrogen Voll. national Book Foundation. Islamabad. Pakistan P.359-360,433-456. weeds in wheat. Pakistan J. of weed sci: Res.14:111-119. Wisconson USA.
- Chapmam , H. D and P. E. Pratt. 1961. Method of analysis for soil, plant and water.Univ.
- Cheema, M.S and M.Akhtar., 2005. Efficacy of different post emergence herbicides and their environment. 22:859-866.
- FAO STAT. 2014. Food and agricultural commodities production: commodities by regions. Retrieved Aug. 18, 2014 from http://faostat3.fao.org/browse/rankings/commodities_by_regions/E.
- Farzad, S and S. Saeed 2015. Efficacy evaluation of some herbicides and different nitrogen for weed management and yield attibutesn weed. WALLA Journal. 3: 39 -43.
  and nitrogen fertilizer in terms of weed response. Weed Research . 46 (6) : 480-491.
- Page, A. L. 1982. Methods of soils analysis Part 2. Amer. Soc. Agric. Pub. Madison. Wisconsin U.S. A.
- Pathak, H, P.K.Aggarwal, R.Rotter, N.Kalrq, S.k.Bandyopadhaya, S. Prasad H. van Kerulen. 2003. Modeling quantitative evaluation of soil nutrients supply, nutrient use efficiency and fertilizer requirements of wheat in india. Nutrient Cycling in Agro eco systems . 65: 105-113. .
- Ryan, J ; G. Estefan and A. Roshid. 2001. Soil and plant analysis laboratory Manual. ICARDA, Aleppo , , Syria and NARC, Islamabad, Pakistan. (2nd ed) P:139- 140.
- Safar ,N.H.Aysan, K. Jalishafagh and S,K.Sajjad. 2015..Effect of nitrogen rates and weed inter fereneon yield **and** yield components of corn (*Zea mays* L.). International Journal of Agronomy and Agricultural Research.1 : 1-6.
- Shad, R.A 1987.status of weed science Activities in Pakistan. progressive Farming 7(1) , pp :10-16.
- Sheibani, S. and H. Ghadiri.2012. Integration effects of split nitrogen fertilization and herbicide application on weed management and wheat yield .J. Agri.Sci.Tech.14:77-86.

Journal of University of Duhok., Vol. 20, No.1 (Agri. and Vet. Sciences), Pp 73-86, 2017
DOI: https://doi.org/10.26682/avuod.2017.20.1.10

– Stantos, B. M. 2009. Drip- applied metam potassium and herbicides as methyl bromide alternatives for cyerus control in tomato crop pro 28, pp. 68-71.

– Soltan poul, P. N. and P. Schwab. 1977.A new soil test for simultaneous extraction of macro and micro nutrient in alkaline soil communications in soil Sci. and plant analysis.8: 195-207.

بوختە

تاقیکرنا زەڤیێ ل ناڤ زەڤیا کولیژا چاندنێ / زانکویا دهوك هاتیە ئەنجامدان ل وەرزێ زڤستانێ **2016-2017** و ب دوو ژڤانا **11/28** و **12/28/ 2016** ژبو زانینا کارتێکرنا چار ئاستێن قرِکەران (**Topik: 2-4D:2000, 2400, 2800 ,1600,2000, 1200)** ملیلتران بو هەر هیکتارەکێ و چار ئاستێن پەینێ نایترەجینی **(0 , 60 , 120 , 180)** کیلوگرام بو هیکتارەکێ ل سەر گژوگیا و دەرامەت و پێکهاتێن دەرامەتێ گەنمی. یەکێن تاقیکرنێ هاتنە دارشتن ل دویف نەخشێ کەرتێن هەرەمەکی بێن تمام کەر وەك تاقیکرنا فاکتەران و ب سێ دووبارە بوویا هاتە ئەنجامدان. ئەنجام ددەنە خویاکرن کو ئاستێن قرِکەرێن جوراوجور کارتێکرنەکا بەرچاڤ هەبوو ل سەر گژوگیایێن بەلگ زراڤ و بەلگ پەحن و هەروەسا ئاستێن نایتروجینی بێن جوراو جور کارتێکرنەکا بەرچاڤ نیشاندا لسەر بەرهەمێ گەنمی و پێکهاتان و هەروەسا کارتێکرنا پێکڤە یا ئاستێن قرکەر و پەینێ نایتروجینی ل ژڤانێ ئێکێ کێمبونەکا دیار هەبوو ل کەرەستێ هشك یێ گژوگیایان و پترین بەرهەم و پێکهاتێن وێ گەهشتە **(51.1** و **1.7**گرام و **41.4**گرام و **379.1**گرام ب پەینێ ئێکێ لدویف ئێك.

تأثیرمستویات مبیدات الادغال والسماد النیتروجیني علی الادغال و حاصل الحنطة في مواعید زراعة مختلفة

الخلاصة

نفذت هذه التجربة في حقل كلية الزراعة / جامعة دهوك خلال الموسم الشتوي **2016- 2017** وبموعدين **28/ 11** و **28/ 12/ 2016** , لدراسة تأثير اربعة مستويات من المبيدات **(Topic: 0, 1200, 1600 2000,** و **2-4, D :0, 2000, 2400**و **2800)**مليلتر. هكتار**-1** و اربعة مستويات من السماد النتروجيني **(0, 60. 120. 18)** كغم . هكتار**-1**على الادغال و حاصل و مكونات حاصل الحنطه.وضعت الوحدات التجريبيه في تجربة عاملية في تصميم القطاعات العشوائيه الكاملة و بثلاث مكررات. اظهرت النتائج ان لمستويات المبيدات المختلفه تأثيراً معنوياً على الادغال الرفيعه و العريضه وكذالك اظهرت مستويات النيتروجين المختلفه تأثير معنوي على حاصل الحنطه ومكوناته كما اظهر التداخل بين مستويات المبيد و النيتروجين في الموعد الاول اختزالاً واضحاً في المادة الجافه للادغال و اعطى اعلى حاصل للحنطة و مكوناته بلغت **51,1** و **1,7**غرام و **41,4** غرام و **379,1**غرام لعدد الحبوب.سنبلة**-1**, وزن الحبوب.سنبلة**-1** , وزن **1000** حبة غم وحاصل الحبوب غم**/** م**2** بالتعاقب.