

EFFECT OF USE TWO TYPES OF PLOWS ON GROWTH COMPONENTS AND YIELD OF WHEAT IN NINEVEH PROVINCE NORTH OF IRAQ

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ABSTRACT

A field experiment was conducted during the agricultural season 2012 - 2013 in clay soil to study the effect of use two types of plows on growth components and yield of wheat, two varieties (Begal and sham 6) and two types of plow (mold board and disc plow) with three replicate used, The characteristic studied in experimen. , Plant height , length of spike, number of seeds per spike, Number of spikes per unit area , weight of 1000 kernel, yield of wheat RCBD design, SAS program used to analysis the experiment, begal variety was surpassed on plant height, spike length , and yield. Disc plow was surpass on plant height, spike length, number of spike⁻¹, and yield The interaction shown the variety bigal with disc plow gave the best result in plant height, spike length, harvest index and yield which it gave 1817.8 kg /h.

Keywords: wheat, disc plow, mouldboard plow, Begal, wheat Sham 6 t

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INTRODUCTION

Wheat is one of the most important field crops ,it come in the forefront of crops in terms of area and yield, (Al Ansari,1982), wheat consider source of nutrient for 35% of the world population (cirtis,1982), provide more than 25% of protein for human body (Gooding et al ,1997), and more than 50% of needed energy for human, Iraq is the original home of wheat, wheat production in Iraq reached 2748800 tons in 2010, (Anonymous,2002), Hassan,2015 shown in the study of effect of supplementary irrigation with three varieties that begal variety surpass compare with sham6 in plant height , grain of spikes and yield, 1990,Ahmad et al, shows shown that tillage is intended to destroy weeds, incorporate crop residues ,increase infiltration and reduces, (Mohammad arif et al, 2001) studied the effect of tillage operation (minimum and maimum tillage) with five rate of seed, the result declare that different tillage affected on wheat, maximum tillage was significant on tillers /m²,thousand grain weight , number of spike /m², and grain yield, (2015,M.A.Bashir), studied the Performance Of Different Tillage Implements methods comprehend chisel plow, disc harrow, disc plow and minimum tillage. On Sorghum And Maize Grown ,the result show although all tillage methods gave fairly similar results in all tested parameters, minimum tillage could be recommended and adopted for sorghum and maize production it was less expensive implement , 2006 Jinan H.N.Al-Talabani, comperis two type of plows and some technical parameters the disc plow record surpass in the number of blocks was greater than 10 cm per square meter (6.222 block / m²) while the lowest modified plow was (4.666 block / m²), 2009 Hussian .A.Hadi, study the effect of

three type of plow (Disc plow, Chisel and mold board) and levels of nitrogen on yield of maize (Zea mays L.) the experimental was carried out in a clay loam soil at. result show surpass of mold board in number of ears /plant , number of grain /plant , and the yield The aim of this study to show the effect of the use of two types of plows on the productivity of wheat crop on the two types of wheat.

MATERIALS AND METHODS

The experiment was conducted in the province of Nineveh, Iraq during the agricultural season 2012-2013. It was an experiment on the effect of the use of two types of plows on growth components and yield two varieties of wheat used, the soil analyzed as in table (1) and shown clay soil . The amount of rain falling during the year 2013-2013 shown in table (2) the study includes the use of two types of plows, moldboard plow, and disc plow and two varieties of wheat, The depth of tillage (25 cm), the plots landing and plow by moldboard plow and disc plow then pulverized, the two varieties of wheat planted, the rate sowing of wheat seeds, 160kg/h, on Dec. Nitrogen fertilizer (N46%) ,And phosphate (P₂O₅) used as the recommendations ,

RCBD design with 3 replicate used, SAS program used to analysis the experiment, the wheat yield was harvested on 1/7/2013, The characteristic studied in experiment was . , Plant height , length of spike , number of seeds per spike , Number of spikes per unit area , weight of 1000 kernel , yield of wheat .

. Table (1): Shows the physical and chemical characteristics of the soil

Size distribution of the soil minutes			Soil texture	penetration resistance kg / cm ²	Ec s / m	N mg / kg	P mg / kg	K mg / kg	soil gypsum	PH
Sand %	Clay %	loam %								
20	51	29	Clay	1.07	4.5	171	0.083	63.63	35.6	7.09

Table (2): rain falling during the year 2013-2012 in Mosul city

Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	Ma.	Total
10.5	66.5	61	117.5	80.5	34	0	13	383

RESULTS AND DISCUSSION

Table (3) of mean variance. Shown there are significant differences between varieties, In, plant height, spike length and yield at 5%, for types of plow reordered significant difference in plant height , spike length, number of spike /m² ,number of grain /spike and yield at 1%. while the interaction recorded significant difference in yield at 1%. Duncan test for the means of treatments shows as in table (4)Begal was superiority in plant height 80.33cm, spike length 10.68cm , number of spike/m² 289, and the yield2362.9 kg/ha, this result is confirmed with (Hassan. 2015) Which he declared that the veracity Begal which entered Iraq was surpassed with sham 6, may be because it is new variety or the Iraqi weather suitable for Begal variety. while type of plow reordered significant differences, disc plow surpass in plant

height 83.03c cm, spike length 10.6, number of spike /m² 308, number of grain /spike, 46.89, and yield 2562.39kg/ha., may be disc plow pulverized the soil Better than moldboard and give smooth texture for wheat growing This result confirmed with Hussian .A.Hadi, 2009 which declared that the type of plow affected on the parameters of wheat, Also Jinan H.N.Al-Talabani shown The different between the plow affect on the soil and effect on the yield. interaction shown in table (5) significant different disc plow with Begal variety recorded highest height of the plant 88.83 cm, spike length 11.4, yield 3603 kg/ha. number of grain,/spike is also recorded the best result although it is not significant 49.7.

Table (3): Analysis of variances

Sources of variation	Plant Height	Spike length	Number of spikes m ²	No. of grains spike	1000 grain weight gram	Yield Kg/h	Harvest Index %
.S.O.V	0.771	0.229	873.083	23.108	3.738	235195.417	16.138
Blocks	270.75**	8.35 **	21.333	13.23	7.7924	1442369.076*	11.956
A	243	6.765	4880.33*	65.800*	0.785	3579729.261*	14.638
B	12	0.010	3468.000	37.101	9.065	5788435.269**	64.551**
A*B	9.521	0.431	798.306	8.826	4.556	279567.888	4.242
Error	9.521	0.431	798.306	8.826	4.556	279567.88	4.242

** difference at 0.01 , * difference at 0.05

Table (4): Effect of varieties and types of plow on yield attributes of wheat

Varieties	Plant height cm	Spike length cm	Number of spikes m ²	Number of grains/spike	1000-grain weight gr.	Harvest index	Yield kg / ha
Begal	80.33a	10.688a	289.166a	45.6	25.108b	23.622	2362.906a
Sham 6	73.833b	9.02b	286.5b	43.5	23.496a	21.626	1669.516b
Moldboard Plow	74.083b	9.103b	267.666b	42.208	1470.033	23.246	1470.03 b
Disc Plow	83.03a	10.604a	308a	46.891	2562.39	22.003	2562.39a

Bearing different letters are significantly different

Table (5): The effect of the interaction on yield attributes of wheat

	Type Plow	Plant height cm	Number of grains/spike	1000 grain grams	Spike length cm	Number of spikes m ²	Yield kg / ha	Harvest index
Begal	Moldboard	77.83b	41.5b	26.23a	9.966b	b252	1122.2c	21.924b
Begal	Disc	88.83 a	49.7a	23.98a	11.4a	326.333a	3603.61a	25.32a
Sham 6	Moldboard	70.33c	42.91b	22.88a	8.24c	283.33ab	1817.86b	24.56ab
Sham 6	Disc	77.33b	B44.0a	24.11a	9.8b	289.66ab	1521.16cb	18.68 bc

Bearing different letters are significantly different

The result of this study shown that use disc plow with the wheat varieties increase the yield of wheat. We recommend use other research's to improve these results.

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الخلاصة

الحنطة (بيكال وشام 6) ونوعين من الحراثة (لوحة كالم ومحراث دسك) باستخدام ثلاث مكررات. الصفات الحقلية المدروسة ارتفاع الدرنات وطول السنبله وعدد الحبوب بالسنبله وعدد السنابل في وحدة المساحة ووزن 100 حبة وحاصل الحنطة استخدام برنامج SAS لتحليل تصميم R.C.B.D التجريبي الصنف بنكال كان متفوق لصفات ارتفاع النبات وطول السنبله ولحاصل. محراث الدسك كان متفوق لصفات ارتفاع النبات وطول السنبله وعدد السنابل / نبات والحاصل، اظهر التداخل ان صنف بيكال مع المحراث القرصي اعطى اعلى نتائج لأرتفاع النبات وطول السنبله ودليل الحصاد والحاصل والتي اعطت 8،1817 كغم/هكتار

كلمات مفتاحية: حنطة، محراث قرصي ومحراث لوحي حديث بيكال، حنطة شام 6

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