COMPARATIVE STUDY OF SOME DURUM WHEAT GENOTYPES UNDER THE RAIN FED CONDITION OF DUHOK GOVERNAT

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Abstract

KeyWords: Genetic , Wheat

Correspondence: Mohammed Othman Mohammed Faculty of Agric.and Forestry-Duhok University This study was conducted at the field of the Faculty of Agriculture and Forestry, during season 2009-2010 to performance of seven durum wheat (*Triticum durum Desf.*) genotypes namely (Semeto, Um rabeea, Acsad 65, Dour 85, Cresto, Sham3 Cocareet S17), were planted under Duhok condition using a Randomized complete block design with three replications. Significant difference was observed among the genotypes for all traits. The results revealed that the genotypes Semeto was surpass for flag leaf area, number of tiller /plant and 1000 grain weight and give high grain yield. The 1000grain weight gave positive and significant correlation with grain yield, No. of tiller/plant while the spike length gave appositive and significant related with No.of tiller /plant, flag leaf area and plant height.

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تقييم بعض ألتراكيب ألوراثيه للحنطة ألخشنه تحت ألظروف الديميه لمحافظة دهوك

محمد عثمان محمد كلية الزراعة والغابات / دهوك

الخلاصة

أجريت ألدراسه في حقل كلية ألزراعه وألغابات في جامعة دهوك خلال ألموسم الزراعي 2009–2010	الكلمات الدالة :
لتقييم سبعة تراكيب وراثية للحنطه ألخشنه (سيمتو, أم ربيع , أكساد 65 ودور 85 وكريزو,شام 3 ,كوكريت س17)	تراكيب وراثية ،
أستخدم تصميم القطاعات العشوائيه الكامله بثلاث مكررات وقد لوحظ وجود فروقات معنويه بين ألتراكيب الوراثية في	حنطة
جميع ألصفات المدروسه حيث تفوق التركيب الوراثي سيمتو على بقية ألتراكيب في صفة المساحه الورقية وعدد	
ألأشطاء ووزن 1000 بذره لذا تفوقالتركيب في صفة الحاصل بالمقارنه مع التراكيب الوراثيه الأخرى ,كما لوحظ	للمراسلة :
وجود علاقه ارتباط موجبه بين وزن 1000 حبه وألأنتاجيه وعدد ألأشطاء للنبات كما أعطى طول السنبله علاقه	محمد عثمان محمد
أرتباط موجبه ومعنويه مع عدد اشطاء للنبات ومساحة ورقة العلم وأرتفاع ألنبات.	كلية الزراعة والغابات / دهما ^ي

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Introsuction

Wheat is an important cereal crop of cool and moderate climates. It belongs to the family Poaceae, it widely grown the world over stands first among cereals in area and production. There are two cultivated species of wheat.viz. bread wheat (Triticum aestivum L.) and durum wheat (Triticum durum Desf.). Wheat is grown in all temperate countries and in the some cooler and tropical countries, wheat crop is harvested some where in the during every month of the year (choowadhry et.al. 1999), wheat is major food for half of the word population (Imad, 2006). Word population rate is increased constantly, and the gap is still big between production and the need for this crop. FAO forecasts, word wheat out put in 2007 (607 mMT).(Million metric tons) produced on 217 mhe (million hectares), FAO STAT,2007). The annual worldwide grain production of durum wheat is estimated at 27.5 mMT, more than 10 years of world production ,(Kubalakovawide wheat M.et al.,2005), but in Iraq the area planted by wheat was about (1.5) million heactars that produced (2.250) million ton, (Ministry of planning and the central office of information technology)but in Kurdistan the planted area by wheat was about (670.989)thousand heacters and the production were (504.078)thousand tons, the percentage durum wheat from production was about (255.797)tons (ministry of Agriculture and Irrigation of Kurdistan Region 2010). High yield and grain quality can be improved by both breading and agronomy practices methods ,so that important to find new genotypes durum wheat suitable for the condition of the area in which they are planted ,since they contain the genes that are responsible for production in order to maintain the permanence of agricultural production, there must be new varieties instead of the old ones whose productive traits have declined because of the genetic segregation resulting from the constant planting over many years ,or being apt to disease which directly affected production .This is in addition to the benefit from them as genotypes or breeds to included in hybridization programs to transfer some of the good traits to the local varieties.

Hamed (1993) mentioned that the grains yield correlated significantly with number of spikes/plant, 1000 grain weight and plant height, wheat negatively and significantly correlated with number of spikelet /spike, (Dokuyucu and Akkaya., 1999).Ahamed and yousif (2005)got appositive correlation between grain and yield and harvest index whereas Imad (2006) find positive and significant correlation between1000 grain yield and its components and some field traits such as plant height and flag leaf area. The main of the present study to investigation seven genotypes of durum wheat (*Triticum durum Desf.*) and correlation between yield and some traits.

Material and Methods

This study was carried out at the field of the faculty of agriculture and forestry/Duhok University, growing season 2009-2010. Seven genotypes of durum wheat (Triticum durum Desf.),(Semeto, Um rabeea ,Acsad 65 ,Dour 85,Cresto ,Sham 3, Cocarret S17 ,from Malta center of agriculture Research . Randomized complete block design (RCBD) used with three Replication each genotypes were planted in two row of four meter length with 15 cm width .The experimental field is fertilized before planting at the rate of 400kg /ha. 18-23-0 (NPK), 100Kg/ha.of Urea fertilizer 46%N also added at tiller stage .Data on the following characters were recorded on five randomly selected plants(spike length ,leaves area ,1000 grain weight ,plant height , No. of tiller/plant ,grain yield kg/ha. Data were analyzed statistically using analysis of variance technique (Steel and torrie ,1984) and used least significant difference (L.S.d) to comp arise the mean of genotypes.

Results and Discussion

Analysis of variance for all characters indicator highly significant differences among genotypes, Table (1).The mean performance of genotypes for all characters measured presented in table 2. For the plant height the Acsad 65 was superior to the rest genotypes since the plant height reached 80.13cm, while the lowest plant height was recorded in genotypes Semeto its reached 64.67cm, Comparison of genotype means indicated that the genotypes Dour 85 had highest value (44.76 cm^2) for flag leaf area while the genotype Cresto produced the lowest value (35.38cm) for the same trait. Maximum spike length was observed from Sham 3 (7.10 cm) among genotypes wheals the genotypes Cocareet S17 had the lowest value (5.97).For the tiller/plant the genotypes Um rabeea produced the maximum tiller/plant (6.97) followed by Acssad 65 and Semeto which 6.70 and 6.64. The genotypes Semeto showed Maximum 1000 grain weight (35.90 g) followed by the genotypes Cristo (34.90 g). Among genotypes Semeto gave maximum grain yield (1252.58 kg /ha.) While the lowest grain yield was showed in genotype Sham 3 (670.52 kg /ha.) This genotypes Semeto was surpass for flag leaf area ,Number of tiller/plant and 1000 grain weight so that gave height grain yield.

Table (3) displayed the simple correlation between yield and other traits. The 1000 grain weight gave

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appositive and significantly correlation with grain yield and No. of tiller /plant while the spike length gave appositive and significant related with No. of tiller/plant, flag leaf area and plant height .The plant height gave negative correlation with 1000 grain weight .The results are in agreement with reports of Dokaucu,F.and A.Akkara (1999),and Lad et al., (2003).

Table (1) Analysis of	variance for different	t characters studies of genotypes.

S.O.V	Length of	Leaves area	1000 grain	Plant height	Number of	Yield
	spike(cm)	cm ²	weight (g)	(cm)	tillers/plant	kg/ha
Block	0.005	16.86	3.87	3.17	0.53	110.5
genotype	0.4	25.26	35.27	80.99	2.32	128756.06
Error	0.09	7.77	5.29	20.25	0.35	616.00
Total	0.17	13.93	14.15	36.77	0.96	37149.98

Table (2) Mean performance for studied characters in seven genotypes.

Treat. Variety	Length of spike(cm)	Leaves area cm²	1000 grain weight(g)	Plant height(cm)	Number of tillers/plant	Yield (kg/ha)
Semeto	6.40	41.22	35.90	64.67	6.64	1252.58
Um rabeea	6.3	38.04	29.00	73.43	6.97	1070.20
Aksad	6.7	37.01	29.30	80.13	6.70	954.70
Dor 85	6.7	44.76	26.00	72.22	6.17	754.91
Cresto	6.7	35.38	34.90	65.98	5.43	978.51
Sham 3	7.1	35.41	25.60	68.60	5.40	670.52
Cocareet S17	5.97	39.55	31.40	70.10	4.30	746.09
L.S.D	0.53	4.96	4.09	8.00	0.51	43.97

Table (3) Simple correlation coefficient between yield and same traits

	Length of spike cm	Nu.of tiller	leaf area (cm²)	Plant height cm	1000grain weight (g)
Yield kg/ha	- 0.15	0.64	0.04	-0.18	0.45
Length of spike cm		0.65	0.4	0.46	0.24
No. of tiller/plant			0.21	0.34	-0.20
Leaf				-0.02	- 0.18
Plant height cm					-0.56

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