Original Research Article

Comparison between un-local wheat varieties (Uralo-sibirskaya, Bora, and Bancal) in the phenotypic traits in the Iraqi environment

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Abstract: Three un-local wheat varieties (Uralo-sibirskaya, Bora, and Bancal) were planted in the field of Kanan region, governorate of Diyala during the season 2017/2018 to compare each other in growth characteristics. The experiment was arranged in RCBD design with three replications. Bora variety was superior in most of the growth traits as compared with other varieties followed by Bancal whereas Uralo-sibirskaya recorded low rates in growth traits, Bora was recorded the highest rate of the traits such as a number of grains/spike 51.60, weight of 1000 grains 380.00 g, grain yield 2.50 g, biological yield 4.96 g, harvest index 51.51%, average of grains weight /10 spikes 2.50 g, grain yield /m2 955.83 g and grain yield ton/hectare 9.55 ton.
Keywords: Uralo-sibirskaya, Bora, and Bancal.

INTRODUCTION

Wheat is the most important main food, it provides nearly 55% of the carbohydrates and 20% calories consumed globally (Breiman and Graur, 1995). Wheat bread has great importance as the main food in the country and the world, also used in the feed livestock (Khodabandeh, 1993). Wheat is the first crop and most important in the world, it constitutes about 22% of the world's food supplies (Arzani , 2005; Pordel Maragheh , 2013). Wheat is cultivated under a wide range of soils and climates, wheat can be grown on both rainfed and irrigated lands (Sayed *et al*, 2017). With the irregular increase of world population, Therefore, one of the economically important issues is to supply for food requirements of a large human population (Patniak and Khurana , 2001). The objective of the study was to comparative between three un-local varieties of wheat (Uralosibirskaya, Bora, and Bancal) in the Iraqi environment.

MATERIALS AND METHODS

The study was carried out during the season 2017/2018 in the Kanan fields, province of Diyala and the lab of Directorate of Diyala Agriculture, three wheat un-local varieties (Uralo-sibirskaya, Bora, and Bancal) were included in this study, where an origin of Uralo-sibirskaya variety from Russia, Bora from Italia and Bancal from Spain. The experiment was laid out in a Random complete block design (RCBD) with three replications, the wheat varieties were planted at a seeding rate of 140 kg ha -1 at 15-23/11/2017 after land preparation as plowing and disking, the seeds were cultivated in lines with 10 cm distance between them and a field was divided into plots ,Dap fertilizer (diammonium phosphate) were applied at the rate of 200 kg ha -1 and Urea at the rate 360 kg ha -1 were applied on two times. .The plants were harvested at maturity by using the quadrate measuring 1m x 1m and the traits were recorded on 10 randomly selected plants in each plot such as the area of flag leaf, plant height, spike height, number of grains per spike ,1000-grains weight , Grain yield , Biological yield , Harvest index %, average of grains weight /10 spikes , number of spikes /m^2, Grain yield /m^2 and Grain yield ton / hectare, the data was analyzed by one way analysis of variance (ANOVA) (Fisher, 2008).

RESULTS

The variance analysis in all morphological traits showed that there are significant differences between three wheat varieties that indicates there is variation among the studied varieties also they are not close to each other in these traits (figure 1). The maximum area of flag leaf (24.19cm) was observed in

a Bancal variety, whereas a variety of Uralo-sibirskaya has given highest rate of plant length (123.26 cm) and spike length (11.40 cm) , Bora variety has given highest number of grains/ spike (51.60) and weight of 1000 grains (380.00 g) (Table1). Bora variety was superior in traits of grain yield, biological yield , harvest index,

average of grains weight /10 spikes, grain yield /m2 and grain yield ton/hectare reached (2.50 g, 4.96 g, 51.51%, 2.50 g, 955.83 g, 9.55 ton) respectively while Uralo-sibirskaya variety was recorded highest number of spikes /m2 (550.66) (Table 2).

Table-1: The comparative between three un-local wheat varieties in some of the growth traits

Treatment		Area of flag leaf (cm)	Plant length (cm)	Spike length (cm)	Number of grains/ spike	Weight of 1000 grains (g)
1	**Uralo-sibirskaya**	23.44 a	123.26 a	11.40 a	38.20 b	350.00 b
2	**Bora**	17.87 b	75.43 b	8.36 b	51.60 a	380.00 a
3	**Bancal**	24.19 a	84.16 b	7.90 b	39.60 b	375.00 a
CD(0.05)		2.6	9.85	2.57	9.9	13.08

Table-2: The comparative between three un-local wheat varieties in some of the growth traits

Treatment		Grain yield (g)	Biological yield (g)	Harvest index %	Average of grains weight /10 spikes (g)	Number of spikes /m^2	Grain yield /m^2 (g)	Grain yield ton/ hectare
1	**Uralo-sibirskaya**	0.67 c	3.54 b	19.44 b	0.67 c	550.66 a	368.93 c	3.68 c
2	**Bora**	2.50 a	4.96 a	51.51 a	2.50 a	382.33 c	955.83 a	9.55 a
3	**Bancal**	1.73 b	3.81 b	45.12 a	1.73 b	533.33 b	922.63 b	9.22 b
CD(0.05)		0.37	0.95	6.91	0.13	14.76	24.03	0.24

Figure-1: Spikes and grains of three un-local wheat varieties, 1= Uralo-sibirskaya, 2= Bora, 3= Bancal

CONCLUSIONS

Based on the results obtained from this study, it can be concluded that variety Bora was superior in growth characteristics from other varieties, followed by Bancal as compared with the Uralo-sibirskaya variety

due to varieties of Bora and Bancal were appropriate to Iraqi environment In terms of temperatures more than Uralo-sibirskaya variety that need very low temperatures.

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