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The Impact of Different Planting Methods on yield and Cluster Characters Wheat (Cultivar of Chamran) Under Different Conditions of Irrigation in the Northern Khuzestan Climate

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ABSTRACT

This paper aims at investigating the impacts of different planting methods on the yield and Cluster Charactersin different irrigation conditions on wheat (cultivar of Chamran) in Khuzestan for one year in Shavoor agricultural farm located in 70 km north of Ahvaz which lies in E longitude 48˚:28" and N latitude 31˚:50" as split plots in a randomized complete blocks design with three replications. The main factor is planting method in two levels of linear and sprinkling, and the subsidiary factor comprises irrigation treatments and dry farming. Variance analysis results revealed that in both factors there is a significant effect in all characteristics is dependent upon genotype, while the interaction of the two factors was significant only on the characteristics of panicle number per square meter and seed number in each panicle. By examining the comparison of grain yield means and other agricultural traits, the highest significant numeric value belongs to linear planting, except for the panicle number per square meter that had completely reverse trends in both treatments. Ultimately it is concluded that besides economic considerations through decreasing the amount of seeds needed and the easier control of weeds, linear planting helps to increase grain yield by accurately adjusting the distance and depth with regard to the proper positioning of seeds through increasing the claw number and other relevant characteristics of performance.

Key words: Agricultural traits, Cluster, Irrigation, Planting methods, Wheat.

INTRODUCTION

In terms of production and area under cultivation of wheat is the dominant crop and increase its product is considered day-to-day (Boyer 1996). Globally, nearly 52 percent of the world's arable land is devoted to growing crops that are cultivated in the amount of 60% (Afzali at al. 1999). Research has shown that the

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growth of mechanization and the use of chemicals in agriculture, efficient (relative) energy gradually decreases However, with the increasing population, limited water resources and soil, mechanization of the general and specific, and aims to increase production per unit area is considered essential to (Taky 1996). The results of the effect of different methods of sowing wheat yield and economic comparisons of the results obtained by the methods of treatment yields, however, differences among treatments no significant Linear function planting of irrigated wheat yield was a basin respectively (Afzali nia 1995). Economic comparison between treatments showed that the above treatment will not only have higher performance but also has a lower cost (Afzali nia 1995). During the review were made to work on a common linear function in the region Iran Zarghan Fars, the results showed that treatment differences in terms of factor distribution of seed, plant density and yield levels are not significant.Hasya work best effective field capacity and linear-linear work with high efficiency Wide field of culture. In general, the overall performance of the work showed that linear and linear-linear machine Linear function Sower Hamedan best work Hasya, culture Wide Nrdastvn (Denmark) followed by the row. While linear Nrdastvn work is dedicated to the best economic performance (Afzali nia 1995). In a study performed on two sowing machines, including a working line and a Working with traditional methods Dstpash row seeding for 3 levels mechanize the chickpea cultivation was assessed after determining factors such as uniformity planting depth, uniformity of plant spacing, plant height and yield were the result of the work of the linear density of 75 kg per hectare of seed for planting mechanization has had acceptable performance (Danaei and Lotfali 2000) The results of research on rice yield under the influence of two commonly used row (techno Huck and Snabl) in Fars province in terms of factors such as accuracy, depth of planting , provide appropriate longitudinal distance between seeds planted in lines , the lateral distribution of seeds and ....work Item Huck has better performance in comparison techno (Aabd Mishani and jafari shabestary 1997). The results of the survey on four planting methods that use a three seed rates Kmbynat seeds with uniformity better than linear work in the distribution OFOGH, but the amount more than linear methods work in the depths of seed on the distribution's .In the mixed culture, the horizontal distribution of linear methods do not differ in this way from all treatments had a greater depth of seed dispersal. Clod mean weight diameter of four times the disk through land preparation, no difference with using Kmbynat (Anafche et al. 2009). Degree of soil compaction using Kmbynat in spite of the heavy tractor, less than four passes using the disc. There was no difference between treatments in terms of yield. The total time consumed in using Kmbynat 76% and 53% fuel than do linear method was four times less disk password (Anafche et al. 2009). Much of the landunder wheat cultivation inarid and semi-dry have beendue tothe shortage of water resour cesinthese areasand thus greatly reduced wheat yieldin drough ten vironments. In the areas of low rainfall and its distribution varies from year to year. And therefore it is very difficult to determine the extent and distribution. In these conditions, the frequency shows fluctuations in consecutive years (Saremi 1993). The use of water-saving irrigation regimes littlecan be viewed asanon-farm water management in enhancing water use efficiency, in creasing the area under cultivation an dalsoto help determine optimal crop pattern (Hoshyar and Miri 2009). By examining the effect of cutting off the water and the water on wheat yield 8 Chamran results showed that both treatment shave the high estper formance and environmental sensitivity yof the coefficient of variation and has abit of (Hoshyar and Miri 2009). The two most important components of biological yield, harvest index and grain weight change inconditions of dehydration are justified (Khdabnde 2005). Comparison of wheat varieties under irrigation showed that the interaction between irrigation and figures is significant for seed weight and seed weight in dry conditions compared to contro l9.22 per cent decrease (Javadi et al. 2003). The results of an experimentto deter mine the physiological stages of wheat Sensitivity than a lack of water in the soil under the climatic conditions of Khuzestan, and investigated the effects of removingone or more stages of the product showed the irrigation at stem elongation stage (shins water) fails irrigation yield and plant heigh treduction will significant lyreduce the number of grains per spikeis significant. Alsore move irrigation at grain filling (water feed) grain very significant weight loss (Imam 2007). The setestse valuate the effect of Cluster Characters in and related linear cluster saffected by the remov al of the irrigation

period to in crease irrigation eff iciency and prevent salt accumulation in agricultural land according to the high level of salt water was carried out.

MATERIALS AND METHODS

The experiment 2010-2011 crops in Iran's Khuzestan province longitude ″ 28: ˚ 48 Longitude ″ 50: ˚ 31 to 33 m above sea level, and for loam soils with 2/7pH = a year in the agricultural field Shavvr as a split plot design (split-plot) in a randomized complete block design with three replications in a plot size of 10 × 5/8 meters away from the main plot of the repeat interval of 10 meters to 20 meters irrigation and drainage systems were implemented separately for each plot. Some meteorological parameters are given in Table 1. The main factor planting (planting one: ninth, planting delays: 1/10) with 250 kg seed ha dose and Chamran cultivars were the sub plots. In this experiment, the irrigated soil after reaching the optimal level (18-16 % of dry weight basis) Cow ground, a common way of plowing to a depth of 30-25 cm using moldboard Plough ours treatments were conducted. 100 kg phosphorus and 50 kg N ha of urea ammonium phosphate source according to soil test results are given to land. All agricultural operations (excluding treatments) such as fertilizer application and spraying, etc., were the same in all plots. The land instead of vegetable crops (accumulation) and a month before planting to harvest the remaining residue was left fallow with the plow soil was mixed and buried. During the growing season, especially in the early stages of growth, weeds to be sprayed with insecticide thread Granstar rate of one liter per hectare and the amount was 25 grams per hectare. Yield parameter such as number of panicles per square meter, panicle length, and number of grains per panicle was measured. Finally,data obtained by analysis of variance with SAS and mean comparisons with Duncan test at 5% probability level was calculated.

Table 1 - Average temperatures and rainfall during the growing period

Agent	July	June	May	April	March	February	January	December
the average temperature	38	6/36	1/31	5/24	4/18	5/13	6/13	9/16
rainfall	0	0	2/9	3/4	7/13	8/85	4/13	4/8

RESULTS AND DISCUSSION

Yield

According to the analysis of variance for grain yield, as expected, the different levels of irrigation and dryland farming areas as well as a line of work by hand and sprayed seeds Dararay significant at one percent level, but the interaction of two there was no significant difference in OS (table 2). Comparison with the observed maximum grain yield by growing line of work and stress, respectively, with an average of 2/5244 and 7/3546 kg per hectare have been achieved and can be the most logical explanation in the line of work and is irrigation increasing the economic performance of the product can be used to offset the cost of those treatments may just make the most of agricultural land, while prohibiting slavery and led to waste the time and energy to place, self-sufficiency major step in the product of economic and is linear so that the irrigation work and thus increase the 75/32 and 03 / 51 percent would yield (table 3). Results based on the positive effect of sowing line to compete with the growing grain and other reviews (Afzali at al. 1999) and that the role of irrigation in the dramatic increase in economic performance with others (Afzali at al. 1999; Saremi 1993) is quite consistent there.

The number of panicles per square meter

planting, watering and interaction between the two factors were all significant effects Do you have this attribute on a percentage level (Table 2).Culture method by linear planting seeds by hand from side to side Irrigated surfaces to dry panicles per square meter increased significantly. The increase in seed treatments could be due to the greater density of plants according to the Seed planting method is used in this course, as mentioned above, other components of the cluster associated with lower final performance culture by a line of work had.The increase in the dry conditions Wandee environment due to stressful conditions and escape from stress by increasing plant maturity and higher-density clusters, which has length less than the number of seeds flakes Hstd (Table 3 and 4). The result of others (Hoshyar and Miri 2009) means that no significant discrepancies irrigation on the yield and high resistance Chamran's high stress situations corresponded about this property.

Panicle lengt

Observations from the analysis of variance indicated that the trait among the different methods of planting and watering significant difference in the level of a Cent while that obtained by the interaction of two factors, no significant differences Was statistically significant (Table 2). The results of the comparison indicate that the the planting method with linear work as well as increased irrigation during the clusters be. You can create an increase in the optimal density planting method with linear and therefore more and better use of resources and higher performance efficiency and effectiveness Irrigation at critical stages of plant considered (Table 3). These results with other studies (Afzali at al. 1999) that On-line planting positive impact on other components under irrigated conditions was in line with performance.

Number of grains per spike

The results showed that the effect of planting, watering and effect significant difference in the level of interaction between the two factors (Table 2). With Observations from Table 3 and 4 examine the grain of the linear method, and work It also has the highest number of clusters were irrigated at the highest and Least linearly related to crop irrigation works in the medium of 39 total Smallest grain planting in the leg and dry with average levels of 66/17 Number of grain clusters. Given the importance of using water to increase performance it is an undeniable economic and strategic product review more accurate water consumption and cost, and also vary in terms of water supply One can use the results obtained from the use and non-use of water should be taken. While planting methods Shyh-distance line to set the seeds and thus Better use of resources and environmental conditions have led to a significant increase product Species is being planted in areas without irrigation and rainfed also work with a linear increase the number of grains per panicle (about 17 grains per panicle) is. The results obtained with other Evaluation of patients (Saremi 1993) in a significant reduction in the number of grains per spike in dry conditions Is consistent.

Table 2. Summary of analysis of variance of some traits

(s.o.v)	(df)	Grain yield	number of panicles per square meter	Panicle length	Number of grains per spike
Repeat	2	$26733^{n.}$	14.333^{ns}	$0.052^{n.s}$	2.333^{ns}
Planting	1	8881196.333^{**}	1689000.333^{**}	1.197^{**}	216.750^{**}
Error (a)	2	77076.333	30.333	0.104	3.000
Irrigation	1	27078056.333^{**}	1233925.333^{**}	4.332^{**}	494.083^{**}
Irrigation × planting method	1	99736.333^{ns}	2244675^{**}	0.003^{ns}	52.083^{**}
Error (b)	4	20571.33	119.666	0.036	2.333
Coefficient of Variation (%)		3.27	1.25	2.75	5.02

n's = not significant * = significant difference at 5% level ** = difference is significant at 1%

Table 3. Comparison of mean traits

factor		Grain yield	number of panicles per square meter	Panicle length	Number of grains per spike
Planting	**Linear Work**	5244.3 a	502.167 b	7.250 a	34.667 a
	Hand Sprayer	3526.7 b	1252.500 a	6.618 a	26.167 b
Irrigation	**Irrigation**	5887.67 a	556.667 b	7.535 a	36.833 a
	Rain fed	2883.33 b	1198.000 a	6.333 b	24.000 b

Table 4 - comparison of some agronomic traits in experimental treatments

Treatment		number of panicles per square meter	Number of grains per spike
Linear Work	**Irrigation**	614 b	39 a
	Rain fed	390.33 d	30.33 c
Hand Sprayer	**Irrigation**	499.33 c	34.67 b
	Rain fed	2005.67 a	17.66 d

There are other similar letters in each column by Duncan's test is significant at the 5% level.

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