Original Research Article

Effect Of Different Weather Relationship in barley (Hordeum Vulgare L.) In Different Sowing Dates And Varieties in Prayagraj Conditions

Comment [U1]: of
Comment [U2]: Barley
Comment [U3]: *Hordeum vulgare*

ABSTRACT

A field experiment entited "Effect of different sowing dates and varieties on growth and yield of barley (hordeum vulgare L.)Under Prayagraj conditions" was conducted during the Rabi season of 2021-2022. The experiment was set at forestry field of Sam Higginbottom University of Agriculture Technology and Science Prayagraj U.P. The experiment was laid out Factorial RBD with three replications having two factors. First factor comprised of three dates of sowing 15oct. 30 Oct. and 15 Nov. whereas second factor consist of three Barley varieties viz; Parth, SHB832, and RD 2052 Crop sown on 15th November recorded higher seed yield as compared to 30th October and 15th October sowing. In cases plant growth parameters of Barley maximum was recorded under 15th November as compared to 30th October and 15th October and in case of varieties maximum growth, plant height, no of tillers per plant, dry weight of per plant, length of spike, grain spike per plant, test weight, grain yield, straw yield, was recorded with 15th nov RD 2052 variety as compared to 15th Oct. Parth and 30th Oct. SHB 832. 15th November sowing with RD 2052 variety proved the most remunerative and economically feasible for cultivation of Barley under the agro climatic conditions of Prayagraj UP.

Comment [U4]: *Hordeum vulgare*
Comment [U5]: At/on

Keyword: plant height, No of tillers, dry weight, test weight, grain yield, Straw yield, harvest Index etc.

Comment [U6]: Keywords

INTRODUCTION

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Barley (Hordeum vulgare L.) is an ancient cereal crop and is considered the fourth largest grown cereal crop in the world with a share of 7% of the global cereal production. It is a cool-season crop that is adapted to high altitudes (Bayeh and Berhane 2011). Barley is one of the first domesticated cereals of the world and India it is considered as a scared grain from ancient times. In the ancient literature and believes, barley has been considered as a health benefitting cereal (Malcolmson 2014) and still in several parts of the country barley based *sattu* is prepared and considered to have cooling effect on the body. In this article present status of barley as food have been briefly complied. Barley are cereal wich have higher content of soluble fibers called beta glucans as compared to other cereal grains (Shah et al. 2017)

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In addition, the energy drinks like Bournvita, Boost, Maltova etc. are prepared from the malt extracts of barley. The parched grains of barley are consumed in many parts of Uttar Pradesh, Rajasthan and Haryana. Due to its perceived cooling effect to human system, it is more preferred to wheat for consumption to reduce the cholesterol level in liver and plasma by

inhibiting the rate limiting hepatic enzyme, Co-A reductase. It is also stimulates fatty acid synthesis in liver (Foster and prentice 2018)

Material and Method

The experiment was set at forestry field of Sam Higginbottom University of Agriculture Technology and Sciences, Prayagraj-211007 (UP) situated in Eastern Central part of Prayagraj at latitude of 21^0 16' N, longitudes 81^0 36'E and altitude 289.5 m above mean sea level. The present experiment was conducted during Rabi seasons of 2021-22.

Prayagraj is situated at an elevation of 78 meters above sea level at 25.870 North latitude and 81.150 E longitudes. This region has a sub-tropical climate prevailing in the South-East part of U.P. with both the extremes in temperature, i.e., the winter and the summer. In cold winters, the temperature sometimes is as low as 8-10°C in December – January and very hot summer with temperature reaching up to 48°C in the months of May and June. The average rainfall is around 1013.4 (cm) with maximum concentration during July to September months with occasional showers in winters. The field experiment was conducted in a RBD in which three varieties and three sowing dates were replicated three times. *Hordeum vulagare* cultivars namely Parth, SHB 832 and RD2052 were sown in Rabi season at 15 days' intervals on three dates of sowing beginning 15th October 2022, 30th October, 15th November.

Seeds were sown at the rate of 100kg/ ha in rows spaced 22.5cm apart and 3-4 cm deep by hand down drill. Fertilizers were applied as per recommended agronomic package for the experiment i.e nitrogen @120kg/ha, P2O5 60kg/ha, and K2O 40 kg/ha. Weeding was carried out manually at about 45 days after seeding. The four irrigations (Excluding rainfall) were given to the crop for proper growth and development from sowing to maturity. Irrigations were given at CRI, tillering, flowering and milking respectively. The weeds were controlled by spraying of 2-4D herbicide @0.75kg/ha as post emergence at 30-35 days after sowing.

Results And Discussion

Plant growth and yield parameters

Among all applied treatments, maximum plant height was exhibited in T_9 var. RD 2052 (10.60, 51.40, 114) at 30, 60, 90, DAS respectively and found to be lowest in T_1 var. Parth (8.26, 45.20, 106) at 30, 60, 90 DAS respectively Table 1.

Table .1 Plant height as influenced by different date of sowing and varieties

Treatments	Plant height		
	30 DAS	60 DAS	90 DAS
Date of sowing			
15th Oct 2021	8.544	45.7	107.522
30th Oct 2021	9.244	48.389	110.156
15th Nov 2021	9.878	50.067	112.189
SEm±	0.071	0.22	0.202

Comment [U10]: MATERIALS AND METHODS

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Comment [U12]: RESULTS AND DISCUSSION

Comment [U13]: Section number?

Comment [U14]: Subsection number?

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CD (p=0.05)	0.215	0.667	0.61
Varieties			
Parth	8.978	47.178	108.778
SHB 832	8.867	47.356	108.744
RD 2052	9.822	49.622	112.344
SEm±	0.071	0.22	0.202
CD (p=0.05)	0.215	0.667	0.61

No. of tillers per plant was exhibited maximum in T9 var. RD 2052(6.0 9.33 and 10) at 30, 60and 90 DAS and found to be lowest in T1 var. PARTH (4, 6.33 and 7.33) at 30, 60and 90 DAS respectively.

Table .2 No of tiller as influenced by different date of sowing and varieties

Treatments	No of tillers		
	30 DAS	60 DAS	90 DAS
Date of sowing			
15th Oct 2021	4.667	7.111	7.889
30th Oct 2021	5	7.667	8
15th Nov 2021	5	7.778	8.667
SEm±	0.286	0.221	0.263
CD (p=0.05)	N/A	N/A	N/A
Varieties			
Parth	4.111	6.556	7.778
SHB 832	4.556	7.222	7.667
RD 2052	6	8.778	9.111
SEm±	0.286	0.221	0.263
CD (p=0.05)	0.866	0.668	0.794

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Dry Weight of Plants (g) was exhibited maximum in T9 var. RD 2052 (0.48, 8.50 and 21.9gm) at 30, 60, and 90 DAS respectively and found to be lowest in T2 var. PARTH (0.40, 6.6 and 18.30) at 30, 60, and 90 DAS respectively.

Table .3 Dry weight as influenced by different date of sowing and varieties

Treatments	Dry weight		
	30 DAS	60 DAS	90 DAS
Date of sowing			
15th Oct 2021	0.446	7.033	19.948
30th Oct 2021	0.477	7.578	20.4
15th Nov 2021	0.456	7.589	20.356
SEm±	0.012	0.19	0.314
CD (p=0.05)	N/A	N/A	N/A
Varieties			
Parth	0.444	6.867	19.067
SHB 832	0.437	7.144	19.651
RD 2052	0.497	8.189	21.986
SEm±	0.012	0.19	0.314
CD (p=0.05)	0.036	0.575	0.949

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Test Weight (gm) was exhibited maximum in T9 var. RD 2052 (39.00gm) and found to be lowest in T1 PARTH (37 gm) respectively. Grain Yield (q ha-1) was exhibited maximum in T9 var. RD 2052 (29.92 q ha-1) and found to be lowest in T1 var. PARTH (27.13 q ha-1) respectively. Straw Yield (q ha-1) was exhibited maximum in T9 var. RD 2052 (19.43 q ha-1) and found to be lowest in T1 var. PARTH (15.20 q / ha-1) respectively. , Harvest index was exhibited maximum in T1 var. PARTH (64.93) and found to be lowest in T9 var. RD 2052 (60.28) respectively

Table .4 yield parameters as influenced by different date of sowing and varieties

Treatments	Test weight	Grain yield	Straw yield	Harvest index
Date of sowing				
15th Oct 2021	37.778	27.823	16.382	63.11
30th Oct 2021	37.889	28.463	17.904	61.406
15th Nov 2021	37.889	28.438	18.487	60.607
SEm±	0.342	0.209	0.317	0.43
CD (p=0.05)	N/A	N/A	0.959	1.299
Varieties				
Parth	37.222	27.838	16.979	62.266
SHB 832	37.222	27.756	16.949	62.136
RD 2052	39.111	29.131	18.846	60.721
SEm±	0.342	0.209	0.317	0.43
CD (p=0.05)	1.033	0.631	0.959	1.299

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The maximum GDD, HTU, PTU consumed by 15 Oct. growing GDD, HTU, PTU consumed by 15 nov. Growing crop and in case of varieties maximum consumed by Parth and minimum consumed by RD 2052 variety

Table .5 Meteorological indiesis as influenced by different date of sowing and varieties

Treatments	GDD	HTU	PTU
Sowing dates			
15th Oct 2021	1,393.22	8,594.61	15,133.67
30th Oct 2021	1,356.89	8,153.71	14,694.18
15th Nov 2021	1,293.33	7,564.66	13,935.45
SEm±	1.294	2.361	2.387
CD (p=0.05)	3.912	7.138	7.219
Varieties			
Parth	1,361.56	8,123.48	14,600.51
SHB 832	1,347.00	8,100.25	14,586.10
RD 2052	1,334.89	8,089.25	14,576.70

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SEm±	1.294	2.361	2.387
CD (p=0.05)	3.912	7.138	7.219

Conclusion

Comment [U20]: CONCLUSION AND RECOMMENDATIONS

On the basis of findings, present research work it can be concluded that 3rd date of sowing (15th Nov. 2021) was found most suitable period for sowing Barley which resulted in maximum growth and yield.

It was conducted from the trial that in treatment T9(D3V3) var. RD2052 found to be appropriate for barley (Hordeum vulgare L.) on prayagraj. It was also found significant for getting maximum growth, yield of the crop. Here it's a need for further investigation to confirm the results at Prayagraj. Among variety of barley RD 2052 proved superior in growth and yield. Based on our study we can recommended farmers around prayagraj to prefer use of RD 2052 variety and sowing of Barley in the 2nd and 3rd week of November for better results and yield.

REFRENCE

Comment [U21]: REFERENCES

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