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Identify new cultivar of wheat crop (*Triticum aestivum*) on the basis of yield parameters and farmer's reaction at KVK crop museum

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Abstract

Demonstration is one of the most powerful tools for transfer of technology. The present study was undertaken to identify the new cultivar of wheat crop at Krishi Vigyan Kendra, Udaipur, (Rajasthan) demonstrated wheat crop museum during *rabi* seasons 2017-18 in different twelve varieties about yield and yield parameters higher recorded under high yield variety over the lower yield variety demonstrate.

Keywords: demonstration, yield parameters, yields, varieties, wheat

Introduction

Wheat is one of the most important food crops in India. Non-adoption of recommended package of practices and improved varieties are major causes of low productivity of wheat in the transitional plane of inland drainage zone (Kumar, 2014). India is the second largest wheat (*Triticum*) growing country of the world after the people's republic of China. There has been a phenomenal increase in wheat production in India after independence, which has gone up from 5.6 million metric tons in 1947-48 to 93.50 million tons in 2015-16 (Agricultural Statistics at a Glance, 2016). Wheat is one of the main crops, which has benefitted tremendously from the green revolution technologies (Soni *et al.*, 2017). Over the last 50 years, area under wheat cultivation has increased from 10 million to 30.23 million ha. (Agricultural Statistics at a Glance, 2016). Crop yields have been showing a similar pattern of improvement from 700 kg/ha in 1950 to 3093 kg/ha in 2015-16 (Agricultural Statistics at a Glance, 2016). This increase has been due to increase in irrigation facilities, application of recommended fertilizers, improved varieties and socio-economic support provided to the farmers. Improved cultivar of wheat crop has played a key role in making the country self sufficient in food production. The average productivity of wheat in Rajasthan state of India is less than 3.5 t/ha, which is substantially lower compared to 4.5 t/ha in states like Punjab and Haryana (Agricultural Statistics at a Glance, 2016). Efforts are being made at various levels to sustain food security through wheat production but as on date the result is not satisfactory and worthy. In Udaipur district of Rajasthan, wheat is a major *rabi* crop grown in over 2.6 lakh ha area with 6.0 lakh ton of production and 23.8 q/ha productivity (Commissionerate of Agriculture, Rajasthan, 2017-18). The productivity level of wheat crop in the Udaipur district low because farmers are not aware about the high yield new cultivar. Therefore, on the basis of 'seeing is believing' principal it is very essential to demonstrate the latest cultivar at KVK so that the farmers see the results and adopt the technology in totality (Tomar and Tomar 2017). A wide gap exists in wheat production with the use of available old variety by the farmers which is reflected through poor yield of wheat crop on farmer's fields. So, there is a tremendous opportunity for increasing the productivity of wheat crop by adopting the improved new cultivar. There are many technologies generated at agricultural universities and research stations but the productivity of wheat is still very low due to poor transfer of technology. The demonstration of improved new cultivars of wheat laid out at KVK. The basic objective of crop museum is demonstrating different new cultivar for the farmers to see and judge the higher yield new cultivar.

Materials and Methods

Demonstrations of twelve wheat varieties were conducted at KVK crop museum to assess its performance during rabi 2017-18. The soil of the experimental field was clay loam having pH 7.6, organic carbon 0.65%, available N 270 kg/ha, phosphorus 19.1 kg/ha and available potassium 299.5 kg/ha. The demonstrations were laid out on irrigated fields with soybean -wheat cropping. Each variety was of 3.5 m x 17 m area and recommended package of practice was used. The sowing was done on 10 November 2017 and harvesting of crop was done during first week of April 2018. The growth and yield parameters viz. plant height, dry weight, ear length, owns length, number of grains and grain yield were observed from ten plants sampled randomly selected from each variety plot at maturity stage and yield was recorded at 12% moisture content.

Results and Discussion:

Farmers were visited wheat crop museum of KVK during the season and by “seeing is believing”, they observed various

growth and yield attributing parameters. Farmers were reacted that plants of RAJ-4079 variety is small plant and having short own length which helps in easy to crop harvesting and solved lodging problem and spike appearance is good. Farmers believed in highest grain production as compared to other rest of varieties.

The recorded grain yield is higher for RAJ-4079 over the rest of varieties. On an average basis RAJ-4079 produced 3.3q higher grain yield in comparison to RAJ-4037. The measured plant height was 78.0 cm for RAJ-4079 as compared to 121.7 cm of C-306. It is well known fact that growth, yield attributing parameters and yield of genotype are interactive outcome of genetic milieu, environment condition and agronomics practices which were provided during its life cycle (Sharma, 2017). The data presented in Table 1 revealed that maximum ear length recorded under DBW-17 and minimum in HI-8498 but owns length higher recorded in Sharbati sunhara and minimum recorded in RAJ-4079.

Table 1: Effect of Varieties on plant growth, yield attributing parameters and grain yield of wheat crop.

S. No.	Varieties	Plant height (cm)	Dry weight plants ⁵ (g)	Ear length (cm)	Owns length (cm)	No. of grains plants ⁵	Grain yield (kg) net plot (51m ²)
1	DBW-17	87.7	42.2	11.7	5.7	320.0	32.8
2	HI-8498	86.3	42.9	7.5	8.9	259.0	29.4
3	RAJ-4079	78.0	37.6	10.5	5.4	198.0	38.1
4	KRL-210	83.4	34.3	8.5	6.4	180.0	30.9
5	HI-1544	88.0	33.5	9.7	8.0	220.0	30.7
6	MP-1203	89.8	41.3	11.2	7.8	283.0	26.8
7	SARBATI	96.7	35.8	11.7	10.0	234.0	30.8
8	RAJ-4037	81.7	30.9	9.8	7.1	182.0	34.8
9	HD-2932	89.1	36.4	10.8	6.7	219.0	33.5
10	MP-3288	96.8	41.2	11.5	5.1	235.0	28.3
11	GW-273	87.0	29.9	9.0	8.4	185.0	26.5
12	C-306	121.7	32.6	8.4	6.0	159.0	18.8
	Maximum	121.7	42.9	11.7	10.0	320.0	38.1
	Minimum	78.0	29.9	7.5	5.1	159.0	18.8

Conclusion

On the basis of farmers feedback and result obtained in present demonstration it can be concluded that adoption of improved new cultivar of wheat can increased wheat production.

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